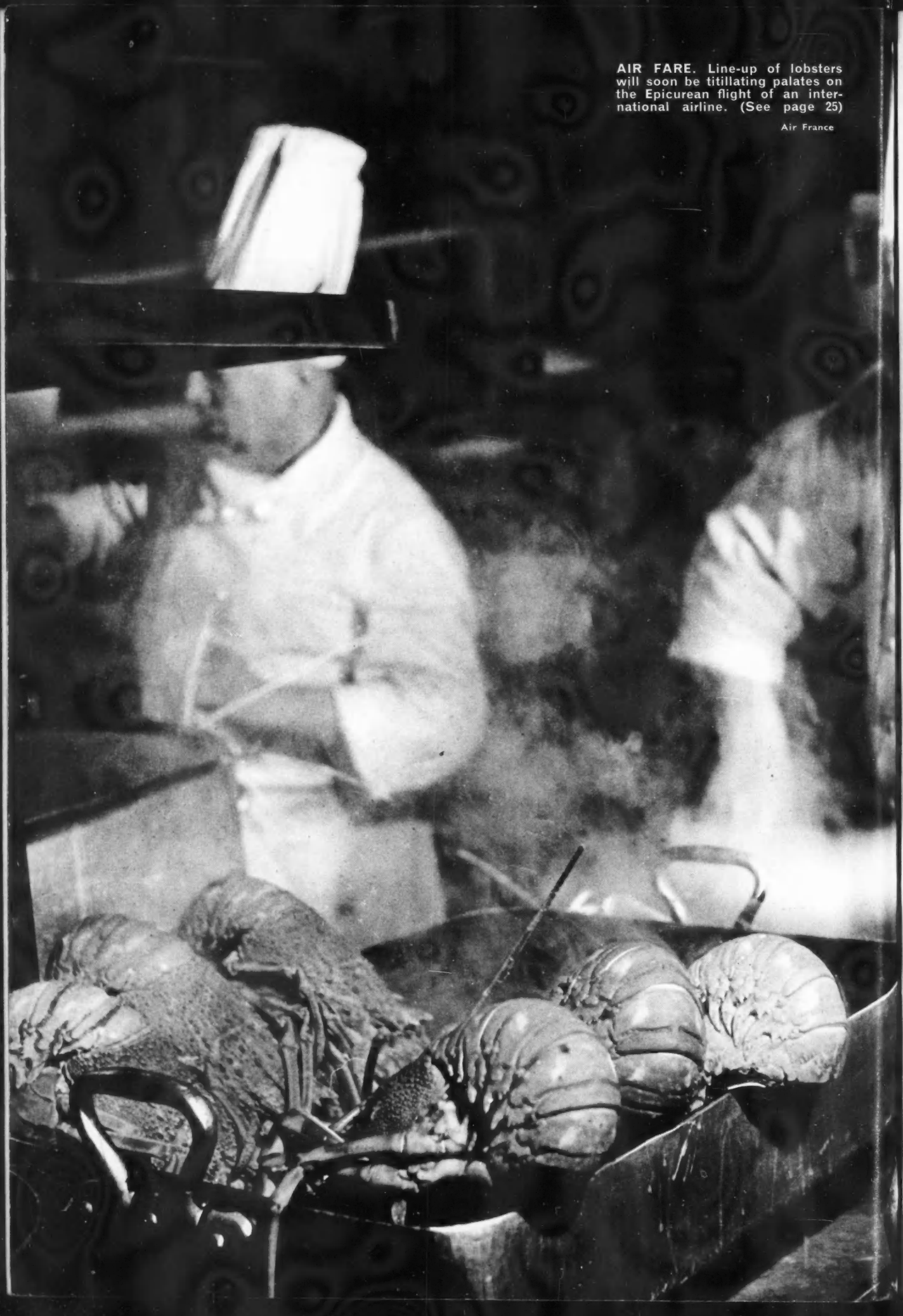
A WINDOW OPEN ON THE WORLD

The UNESCO Courier

UNIVERSITY OF MICHIGAN
MAY 16 1957

THE FOOD WE EAT

APRIL
1957
(10th year)
Price: 9d. (U. K.)
25 cents (U. S.)
40 francs (France)



AIR FARE. Line-up of lobsters will soon be titillating palates on the Epicurean flight of an international airline. (See page 25)

Air France

The Courier

APRIL 1957 **10th YEAR**

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Published monthly by
The United Nations Educational, Scientific and Cultural Organization

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THE UNESCO COURIER is published monthly (12 issues a year) in English, French, Spanish and Russian. A small Japanese version is published in Tokyo and a Danish version in Copenhagen. The United States of America edition is distributed by the UNESCO Publications Center. U.S.A. 152, West 42nd Street, New York 36, N.Y., Pennsylvania 6-0851. Second-class mail privileges authorized at New York, N.Y.

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Annual subscription rates: $2.50 ; 8/- ; 400 French francs or equivalent.

Printed in France (M.C. 57.1.111 A)

COVER PHOTO

Only about one sixth of the world's population—some 400 million people, living in 20 countries—have relatively high living standards with sufficient of the right foods to eat each day. More than half of the remaining 2,000 million human beings never obtain enough good food for health and growth and full physical vigour. The problem of "Food and Health" is the theme of this year's World Health Day. (See below).

Denmark © Paul Almasy 1957.

WITHOUT enough of the right kinds of food, nobody can be healthy. This simple truth holds the explanation of much of the misery from which mankind suffers. A vicious circle has arisen—poor health impairs productive capacity; low production of foodstuffs brings under-nutrition, sickness, less productive power.

Health means more than simply the absence of disease and infirmity, and enough food does not mean just sufficient to maintain life. Lack of essential food makes itself felt at the very least by general debility, slackening of initiative, and reduced resistance to disease.

The rapidly-developing science of nutrition has now established just how much of different kinds of food is necessary for health. A good deal is known also about in what particular ways the food eaten every day in many parts of the world falls short of man's requirements. This is only a beginning, however, and there remain many problems to solve before it can be claimed that the world's food is really serving the world's health needs.

To provide food for under-nourished peoples in adequate quantity, vast efforts in both production and distribution are required. These are problems with far-reaching economic implications.

Even where staple foods are available in fair quantities, malnutrition very often still exists because certain essentials (proteins, vitamins, etc.) are not present in the right quantities. This lack of the right foods for health is an even greater difficulty than shortage of staple foods, for it involves not only assuring necessary supplies, but also bringing the community to understand and accept the advantages of using them.

In the case of certain of the deficiency diseases such as beri-beri, rickets or kwashiorkor, it is fairly easy to demonstrate the advantages of a properly balanced diet. However, many of the beneficial effects are less evident, and make themselves felt as a gradual improvement in health and well-being, especially among children. The difficulty is that people do not easily forsake food habits and beliefs that are a part of their cultural or religious heritage simply because somebody comes along and tells them that, perhaps for generations, they have been eating the wrong things or not eating the right ones.

As well as the evils that arise from shortage and poverty, there are the problems of plenty. Surplus production in some parts of the world cannot, for economic reasons, always be used to compensate for shortages in other places. Where food is abundant, moreover, there are very real health dangers from overeating, particularly of certain fatty foods which are now believed to predispose to disease of the heart and the blood vessels.

As countries become more highly organized, economically and socially, the use of preserved foods and large-scale food processing tends to become more common, aggravating the risks of widespread food-borne infections and food poisoning.

It is, I think, clear that the relationship between food and health has become a very close and intricate one, and that we can no longer let ourselves be guided simply by the customs and beliefs of earlier generations. There is no area of the world, no country and no culture which today can afford to neglect the scientific teaching now available on nutrition, food values, and the techniques of producing and processing food.

World Health Day, April 7, 1957, will, I hope, serve as an occasion for people and governments everywhere to think seriously about this situation.

Dr. M. G. Candau,
Director-General, World Health Organization

U.N. faces the question:

NEED WE GO HUNGRY?

by Professor André Mayer

I REMEMBER in 1939 a certain well-known person saying to me: "The idea of organizing nutrition on a scientific basis is a wonderful one, but it is a dream." Six months later war broke out and put to the test all the ideas that had been advanced in this field some years earlier by the League of Nations.

In the case of nutrition, the results were striking in countries like Great Britain where it was possible to organize feeding scientifically. Despite all the upheaval caused by the war, infant mortality fell to lower levels than any that had previously been recorded. On the other hand, France, occupied, held to ransom, and devastated, had just the reverse experience.

In the case of agriculture, the problem, even for a highly equipped country, was how and with what speed a well-managed agriculture could adapt itself to a "nutritional planning." The United States decided to feed an additional 40 million people in the forces and in the liberated countries, and it succeeded in doing so in less than two years by increasing its agricultural output by one-third. At the same time, the prices of rational foodstuffs were so fixed that wages were sufficient to cover "the cost of living." Thus a veritable social experiment in a large industrialized nation showed how sound were the estimates that could be based on the new knowledge.

The results were such that people began to wonder if what was done during the war and for war purposes could not also be done when peace was restored and for the maintenance of peace. It was this thought, in fact, that gave birth to the idea of setting up the Food and Agriculture Organization (FAO) and then the World Health Organization (WHO).

To what then was this undeniable impact of the war due? A modern war, as the last two have taught us, brings into play all the forces of society. In that sense they were "total wars." Total war can be conducted only if all social activities are completely mobilized. Such mobilization rests on plans and the plans in turn on estimates and calculations which are only possible if much is known about the society.

Some early surveys of diet and state of nutrition were associated with the work of the League of Nations at Geneva. The aim was to determine nutritional status in the more advanced countries. The results were astonishing. In the southern states of the U.S.A. pellagra was killing more people than tuberculosis; in parts of Great Britain, 90 per cent of the children had mild signs of rickets; and in France, obvious manifestations of malnutrition were found in certain social groups.

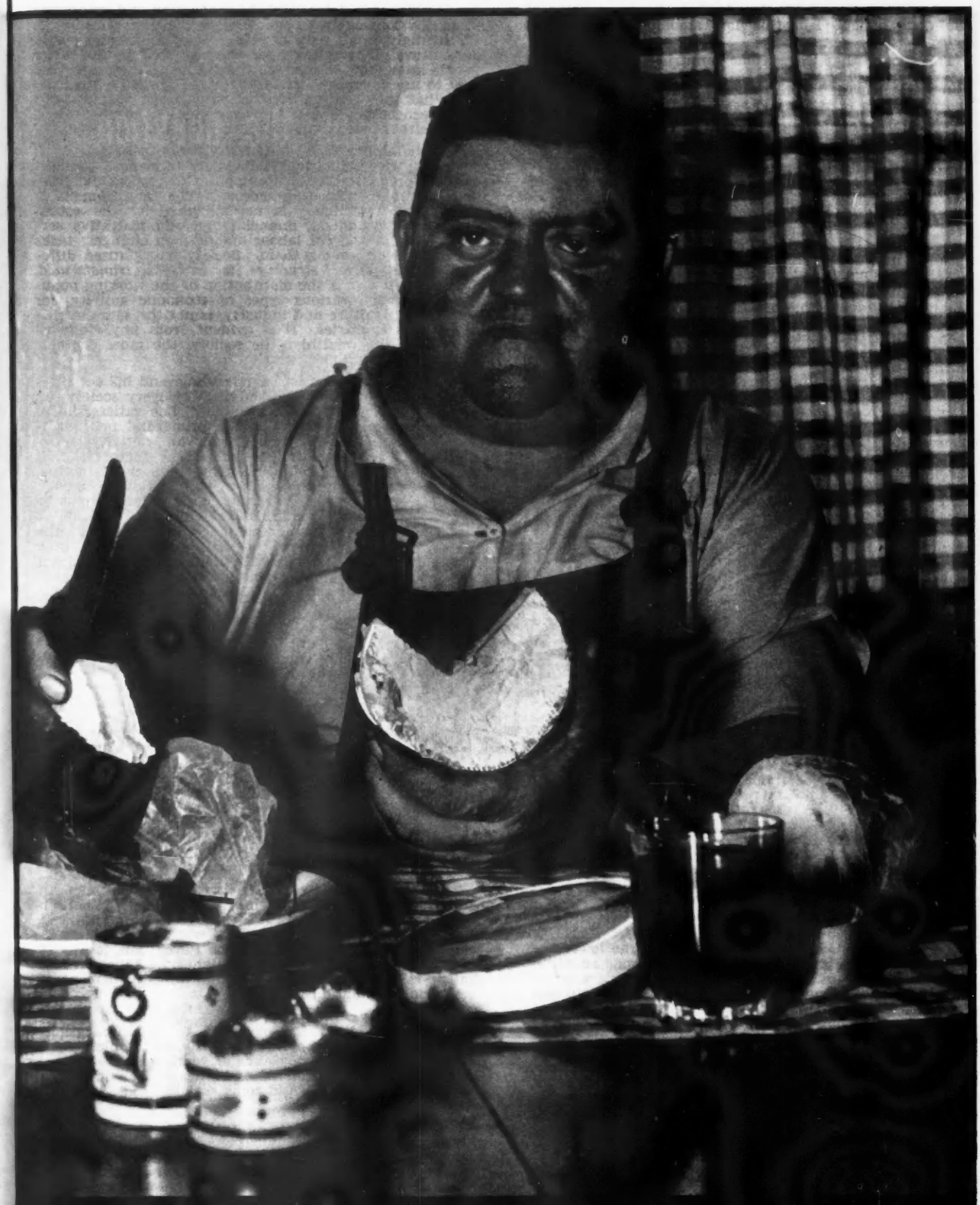
No sooner had FAO been set up than it was faced with a threat of world famine. As it was bound to do in the circumstances, the Organization launched the first survey of world food supplies, based on all the documentation that governments, research institutions and financial groups could provide. This survey excited great universal interest. It drew attention to a situation about which, in fact, people had only very vague ideas, and which, perhaps, no great attempt had been made to bring to light. It revealed an amazing inequality in the amount of foodstuffs available to human beings.

There are in this world some 2,500,000,000 human beings grouped into societies and into some 80 nations that have monopolized the dry land but, fortunately for the future, have left undisturbed for the most part the freedom of the seas. Of some 13,500,000,000 hectares, these nations make use of that part which is arable land, grass land or forest land. They cultivate only 8 per cent of the total land area.

Ten years ago it was shown that Western Europe, which comprises 3 per cent of the total world land area and 15 per cent of the world's population, produces almost one-third of the world's food. Add the U.S.S.R. and North America, and one-third of mankind consumes three-quarters of the food produced in the world. Asia, with almost half the world's population, has available only 17 per cent of the world's food. What is more, the situation in different parts of one and the same country may be quite dissimilar. FAO's first survey has shown that the food available to two-thirds of mankind provides less than 2,750 calories per capita; for half

Cont'd on page 6

Professor André Mayer, an eminent French doctor and scientist, was one of the founders of the U.N. Food and Agriculture Organization, with which he became so closely identified that he was often referred to as "Mr. FAO". Professor Mayer tackled FAO problems with a particular interest, not only as a nutritionist, but as an internationalist, because, as he once said, "every effort to outline a plan for social rehabilitation entails 'reconsidering' agriculture as a whole." He died on May 27, 1956. This article is taken from his inaugural lecture at a nutritionists' training course organized at Marseilles in 1955 by the French Government, FAO and the World Health Organization.



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REAT CHEESE EATERS. The French are the world's greatest eese eaters and wine growers. Frenchmen consider that a glass of ne helps to bring out the taste of cheese. (Recently the French vernment has been campaigning against the excessive use alcoholic drinks). The average Frenchman ate 37 lbs re meat and 110 lbs more milk and dairy products in 1954 than he did in 1948. The increase in the consumption of meat and other livestock products in Western Europe has been particularly marked in the past two or three years. At the same time consumption of cereals and starchy foods has declined. The reverse side of the picture is seen in the Far East, one of the regions where grave food problems persist.

mankind, less than 2,250; in addition, the composition of the diets which yield this low amount of calories is defective.

This means that the various countries are not equally capable of feeding their people, or of feeding them well. Ability to nourish its members is, therefore, one of the characteristics of a society, an important social fact.

It is associated with another social fact. Within different nations different social groups are not equally well fed. The extent of this disparity is also a social characteristic. We must remember too that the daily food intake of these groups differs as much in composition as in quantity. Diet, therefore, raises a social problem in one sense of the term, that of the inequality of men in the face of the same need for food. What is important and more significant still, it raises a social question in the first sense of the term "social", that of social behaviour and structure.

Inequality in the matter of food is not the only inequality between people of different countries, or in one and the same country. There is another, and a serious one, of which the doctors are aware. It is inequality in the matter of health. This is strikingly reflected in the mortality statistics for both children and adults. Such a state of affairs can be expressed in several ways. For instance, we can calculate statistically the life expectancy of a newborn child, and we find that it ranges between about 27 years in India and 67 years in the United States. A person, therefore, has a longer or shorter life, according to whether he happens to have been born in one country or another, and a more or less full life and a life more or less unimpaired by sickness and disease. It is said that until recently one-quarter of the population of India suffered from malaria. This entails millions of hours of painful inactivity. That then is a second inequality between nations and between groups within a nation; it has been called "inequality in the face of death." It is a second characteristic of societies.

WORLD HEALTH DAY
'Food and Health'
7 APRIL 1957
Organised jointly by WHO and FAO

Worthy of note is the fact that the countries with most sickness and disease are also those with the poorest health services. They have, practically speaking, no doctors. In France there is one doctor for every 1,600 inhabitants. In Ethiopia one for every 176,000. Situations like this exist because in some countries education is open to all while in others the majority of people are illiterate. But these three characteristics of nations and of societies are not the only ones by which they can be differentiated and defined. Nations are not all equally capable of producing foodstuffs. What has been called the "productivity index" for foodstuffs differs widely from country to country.

Comparisons between societies show that the lower the income the higher the proportion of the income spent on food. Again, the quality of the diet depends largely on income. In a poor nation or group, the diet will contain less meat or milk than in a wealthy group. Plant foods are obtained directly from the earth, while livestock feed on plants which they convert into meat or milk at a high cost in terms of calories; consequently meat and milk are expensive foods, sometimes inaccessible to the poor. In the case of milk, this can be serious.

But it is not only in respect of food that productivity varies widely in different countries. This is reflected in the cash value of annual national per capita production, which is as much as $770.00 in the U.S.A. and as low as $20.00 in India. There are thus relatively rich and relatively poor nations just as there are within the nations relatively rich and relatively poor groups. Significantly, when countries are classified according to income, productivity, the quality and quantity of food resources, the life span of people, health and education, it is invariably the same countries that are at the top or at the bottom of the scale. Thus the characteristics enumerated here are not associated by chance. They are inter-related, and indeed interdependent. Curiously enough, this interdependence is reflected in the social structure itself.

In countries with a low per capita income almost all human labour is devoted to the production and processing of food. Conversely, in countries with higher income, an increasingly small part of the population is engaged in agriculture. The reasons for this are that in the latter people know how to manage the land and the crops, and how to use chemical fertilizers for the enrichment of the soil; that they protect livestock and plants against pests and breed better types; that they make farm machinery, which either eases man's work or does it for him.

All this implies an existing well developed industry. In such countries industrial products are exchanged for agricultural products. This presupposes transport facilities and organized marketing services. The improvement of agricultural techniques is accompanied by the establishment of technical, financial and administrative services. The division of labour among men changes; tasks are divided up among them. Society is organized differently; *the social structure is in fact transformed.* Statistics show that the distribution of the working population over the various types of economic activity, for example agriculture and industry, is not the same in rich as in poor countries. It is evident from any study of them that the wealthier the society, the more complex is its pattern, and vice versa.

Just as man himself is a single whole and his activities are interdependent, so the activities of every society are interdependent. The satisfaction of hunger is a primordial one. It is not, however, an activity independent of other factors. It is conditioned by the social structure, on which in turn it has an impact. As a result, human diets cannot be modified or changed without at some point impinging upon the social structure itself. Not only technical questions are involved but also social issues.

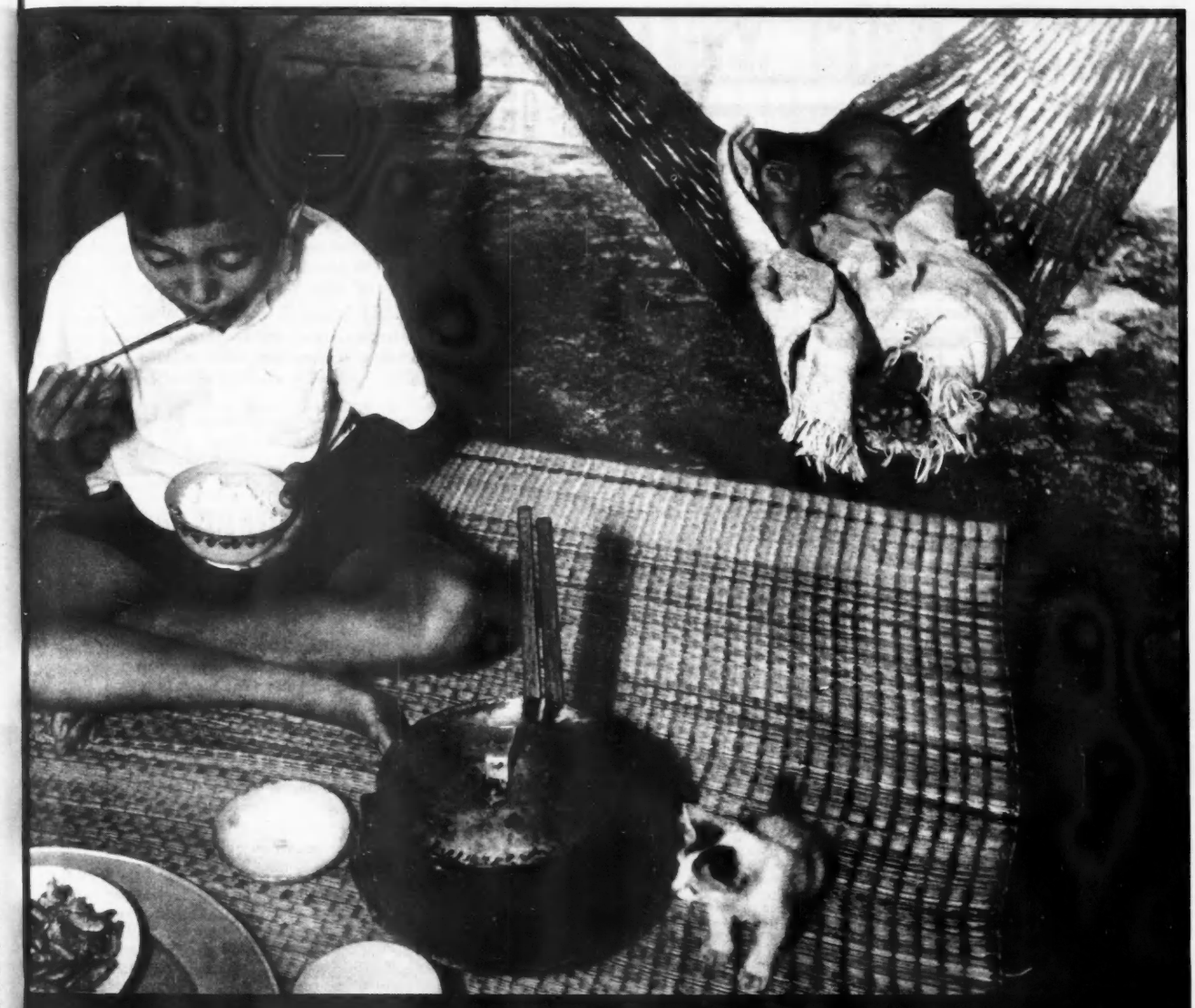
Expectation of life and the incidence of disease differ widely from one country to another. There are many other related differences. Children may be healthy and attain a healthy adult life, or many of them may die prematurely. The diet may be good in quantity and quality, or it may be the reverse. People may be well clothed and housed, or the opposite. They may be engaged in productive work which is not too arduous, or in heavy work which gives low returns. They may have opportunities for material and social advancement because they are well educated, or such opportunities may be closed to them. Great inequality among nations and within a nation is a feature of our world today.

However, I think we can safely say that something can be done to remedy this situation. Countries at the bottom of the scale are not intrinsically different from those at the top. Life expectancy in India until recently was 27 years; in France, on the eve of the Revolution, it was 26 years. Infantile mortality was higher in Lille in 1848 than it is today in Bombay. Famine killed 5 percent of the French population in 1770.

Until our day, technical progress spread but slowly. There were all kinds of obstacles to communications between countries, and many societies were completely cut off from the others. Thousands of years were needed for the use of stone instruments or bronze or iron to spread throughout the world. And some societies today are still in the Stone Age!

One of the consequences of technical progress is the growing speed of communications. This has brought nations closer together. But what is more serious, it has made it possible for nations to involve all the other peoples of the world in their wars. Not only our inventions, but also our ways of thinking and our ways of doing things have reached them. They have thus become conscious of their poverty and been led to follow in our footsteps. We have begun to help them and in so doing have started a movement which, even if we wanted to, we cannot stop.

This raises a tremendous problem. It is nothing less than that of directing the development of all mankind—an unprecedented undertaking and one from which we cannot draw back. In fact, we must even speed up that develop-



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THE SEVENTH BOWL OF RICE: Approximately 2,650 million people live in the world today. In 1975, there will probably be more than 3,000 million. For every five bowls of rice or plates of food provided today an additional one will be needed by 1975 even to maintain the present inadequate diet of most of the world. To improve nutritional standards on a wide scale, a seventh plate of nutritionally important foods will be needed.

ment; and one of the reasons for this illustrates the interdependence of social activities.

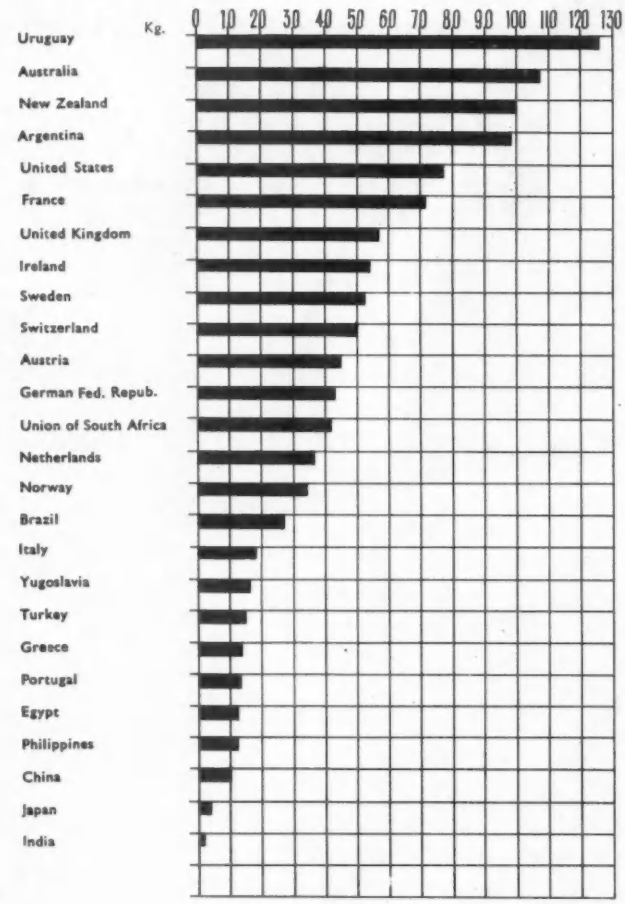
For our own safety, as much as for that of others, we must control communicable diseases, which are no respecters of national boundaries. Naturally WHO and UNICEF, whose concern this is, are conducting campaigns against such diseases and all other diseases; and they are doing so with remarkable success. They are driving back the spectre of death. But, by the same token, they are contributing to a rapid increase in the population of the world. If more children survive, if more adults live longer, how are they to be fed? This is where the economists evoke the shade of Malthus.

Malthus will be right only if we fail to act. But we must act quickly—faster than the population increases; otherwise, what will happen to these millions of starving, miserable people? History teaches us the danger of poverty when poverty has become conscious of itself. We must, therefore, resolutely pursue our task.

Let us not be deceived by words as to its nature. It is not merely a technical undertaking, as might appear from the name given to the assistance in developing countries. It is much more than that.

We, too, have our under-developed areas, but our peoples have learned that if technical progress is to continue to contribute to an expanding economy and a fuller life, it is in the interest of all to raise the standard of living of the whole population, and not only of a part of it. Again, the cumulative and universal nature of science and technology makes it necessary to recognize a community of interests not bounded by natural frontiers. Whether they wish to or not, the countries of the world are becoming interdependent. They must help one another, as their individual citizens have helped each other. Such mutual assistance is being organized under many names. Basically, however, it is mutual assistance.

This movement raises a tremendous problem of world dimensions. But whether a problem is narrowly defined or is apparently unmeasurable, it is never well to tackle it unsystematically. This particular one cannot be left at the mercy of immediate political and economic considerations. We know that it is international, that it involves all the activities of nations. It must, therefore, be dealt with by international action, joint and simultaneous action for the satisfaction of all man's basic needs. An extraordinary adventure has begun, one of the most splendid and astounding that men have ever embarked upon in all their history.

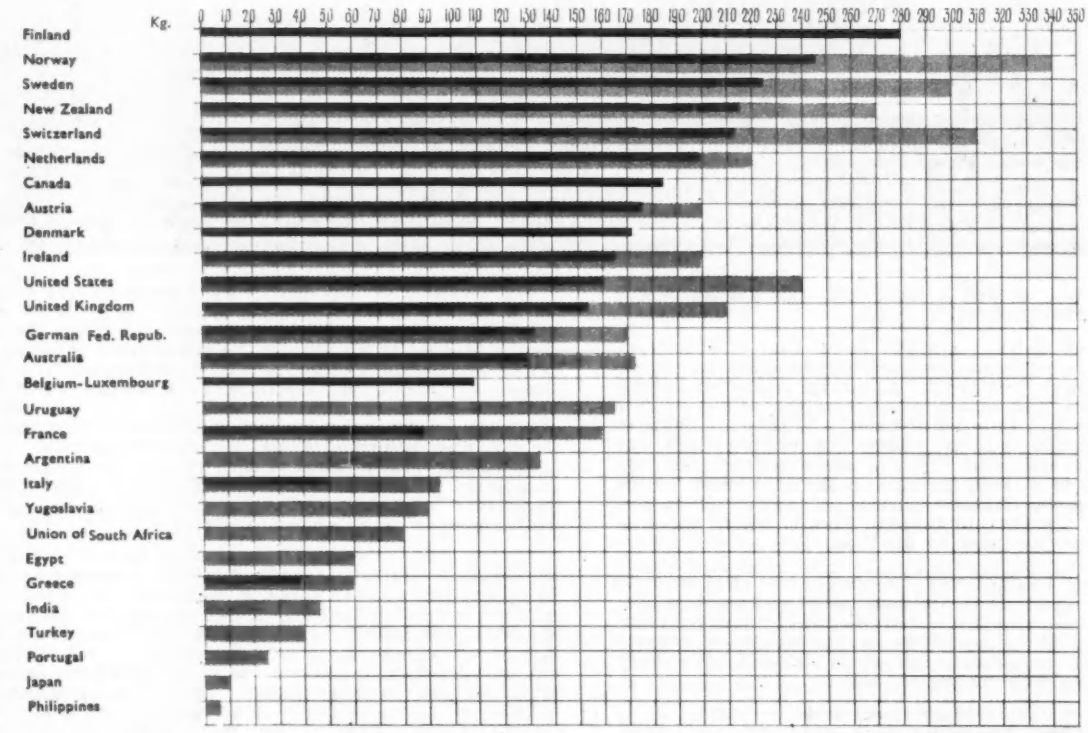


URUGUAY, AUSTRALIA GREATEST MEAT EATERS

Uruguay and Australia eat more meat per capita than any other countries in the world, according to the latest survey made by the Food and Agriculture Organization. Next in order come New Zealand, Argentina, the United States, France, the United Kingdom and Ireland. Graph (left) shows meat consumption (including poultry and offal) in kilograms per inhabitant per year for 26 countries.

SCANDINAVIANS DRINK THE MOST MILK

The consumption of milk and of dairy products in 28 countries is shown in this graph in kilograms per person per year. The black band indicates the consumption of liquid milk—in almost all cases the figures include the whole milk equivalent of cream. The grey band represents the consumption of milk and dairy products combined (in terms of liquid milk). Scandinavians are high on consumers' list. Statistics of milk or of milk and dairy products are not available for all countries indicated here.



Unesco Courier graphs - R. Jacquemin

The foods we eat WHERE DID THEY COME FROM?

THE migration of birds and animals is regarded as one of nature's great wonders. Less well known, but equally fascinating, are the facts of plant migration. Plants—"nature's paralytics", as one botanist has called them—have managed to girdle the globe, using the winds and the waters and sometimes travelling as "stowaways" on men and animals. Innumerable kinds of grains from different lands have crossed the oceans, some of them carried by birds, as was the pimento, which found a home in Jamaica. There have been organized plant migrations too, when nomad peoples, scientific missions, merchants and colonists took seeds with them to ensure their food supplies or to start new industries.

Today, we can almost speak of a "universalization" of cultivation as more and more plants are made to grow fruitfully far from their lands of origin. The ancient and historical associations of globetrotting plants are revealed in this Alphabet of some of the more common foodstuffs, showing their places of origin and the areas where they are widely produced today.

AUBERGINE (egg plant) — *India.* During the Middle Ages the plant was brought from India to Africa, from where it reached Spain. Today cultivated in the warmer parts of Europe and the U.S.A.

BARLEY — *Arabia, Mount Sinai, Caucasus.* It was from the Caucasus that the cultivation of barley spread throughout Central Europe. In the 16th century it was still Europe's chief bread material.

COCOA — *Mexico.* The beans of the cacao tree were originally used to make an aromatic drink called *xocoatl* and were also employed as currency by the Aztecs. In the early 16th century the Spaniards introduced it into their country, launching, around 1520, the fashion of drinking "chocolate", a practice which spread to France in the following century. Until the First World War, Europe received most of its supplies from Venezuela and Ecuador. Today, the main cocoa producing countries are Ghana and the Ivory Coast.

Shell

COCOA BEANS from the cacao trees grown on the coastal lowlands are the major crop of Ecuador, one of the world's principal producer countries. Some years ago it was still the practice to dry the beans on the streets of Guayaquil, Ecuador's chief port (above). Today there is far too much traffic.

COFFEE — *Ethiopia.* The coffee tree was introduced into Arabia from Ethiopia about the 14th century. Coffee was known in Venice around 1570 and in Marseilles in 1660. The first establishment "for the drinking of coffee" —the famous *Cafe Procopio*—which later became a favourite meeting place for Fontenelle, Voltaire and Diderot —was opened in Paris in 1672. From France, coffee travelled to the West Indies in 1716. The Dutch introduced it into South America, and Brazil became the chief producer of coffee. The great city of Sao Paulo owes its development to this fact, and its port, Santos, is now the "coffee capital" of the world.

CORN (Maize) — South America. According to the Swiss botanist, De Candolle, Indian corn, or maize, originated in the region which today includes Ecuador and Columbia. It is also said to have come from Florida. Whatever the truth of the matter, Spain and England were the first European countries to use it as a food, early in the sixteenth century.

HARICOTS (French beans) — *Mexico, Central and South America.* From these places, Italian navigators carried the plant to Rome where Pope Clement VII blessed it and gave it his special protection. In 1556 it was being grown in pots in several parts of Italy, and in the same century it was introduced to France by Catherine de Medici, wife of the French King Henry II.

MANIOC (Cassava) — *Amazon Region.* The Indians of South America found they could eliminate the hydrocyanic (prussic) acid in this root plant by boiling it, thus making it completely edible. Today's largest producer is Madagascar which exports large quantities in its commercial form as tapioca.

OLIVES. — *Greece and Asia Minor.* Cultivated since pre-historic times in Asia Minor, the olive spread very early to all Mediterranean countries. The olive branch has been a symbol of peace since before Christian times (oil can cure human ills and calm troubled waters).

PEANUT (groundnut). — *Brazil, and the West Indies* (where it is called *mani*) and *Peru* (where it was given the name *inchic*). The Spaniards who reached Mexico in the 15th century confused the peanut with the beans of the cacao tree (*cacahuatl*). The plant soon reached Asia and Africa. It was first used as a food in France after 1801, thanks to the efforts of Louis Bonaparte who learned to appreciate its qualities while he was ambassador in Madrid. Today India heads world production and cultivates a total of 2,050,000 acres.

POTATO. — *South American Andes regions* (Columbia, Ecuador, Peru, Chili). The Spaniards introduced the plant into Galacia in the 16th century, while Francis Drake did the same in England. Sir Walter Raleigh had it planted in Virginia and in Ireland. The French were slow to adopt it as a food, preferring the Jerusalem artichoke (still called *topinambour* in France from the Topinambou Indians of Brazil where the plants where first discovered). Two centuries later the efforts of Parmentier to develop potatoes as a staple food in France were successful.

SPINACH. — *Persia.* Long used as a potherb, it was introduced into Europe in the 15th century. Today one of the largest producers is the U.S.A.

SUGAR CANE. — *Bengal, Siam, Indonesia.* India was already producing cane sugar 600 years before the Christian era. In the 7th century the sugar cane was imported into North Africa, then, in 996 A.D., into Venetia, which obtained a monopoly of the product. Spain developed sugar plantations in its New World territories, and by the 18th century, Cuba, the West Indies and Santo Domingo became the leading producers of sugar cane. After the First World War, Cuba and the West Indies were producing 4,000,000 tons a year.

TOMATO. — *Mexico.* This plant, known in Mexico as the *tomalti*, began to be grown in Spain, Portugal and Italy in the 16th century. It was not cultivated in France and North Africa (leading grower today) until 1785.

WHEAT. — *Mesopotamia.* From here this grain travelled throughout the ancient world, and reached America with the caravels of Columbus. Today the greatest producers are the U.S.A. and the U.S.S.R. (See page 32).

One man's meat is another man's... taboo

by Alfred Métraux

No civilization makes the best possible use of the food resources at its disposal. Before any kind of fruit, vegetable or meat is pronounced as fit to eat by a particular people, it must first be approved for the purpose by that people's cultural traditions. These tastes and distastes, which differ so widely among the various civilizations, have always been a source of indignation, contempt or sneering, and were almost certainly a prime subject of conversation in the caves of Palaeolithic man.

Even in prehistoric times, peoples were undoubtedly graded according to their eating habits. Poetically, the best known instance of this is the *Odyssey*, where the "bread-eaters" (the Greeks) were ranged against the barbarians, who were "lotus-eaters," or even eaters of human flesh.

Exotic peoples provide us with a wealth of examples to illustrate the infinite diversity of human taste. To eat a caterpillar, even if roasted, appears to us as the height of perversion ; but in sub-tropical America the native populations, and even visiting ethnographers, do not turn up their noses at the grubs which they extract from the trunks of palm trees. A village of Indians is overjoyed at the arrival of a flight of ants which can be cooked in the pot. And those who are nauseated by this human consumption of insects would do well to remember that these same Indians would be literally ill if they were forced to eat a hen's egg, or even chicken. Rats, of course, are "siege food" ; yet they were a delicacy for certain Polynesians, though the latter, it is true, had no rabbits to feed on. And we should not forget how fond the Aztecs were of small dogs, which they fattened for banquets.

Even peoples who are neighbours and belong to the same civilization can so differ, in their feeding habits, as to cause mutual incomprehension and even disgust. The appellation "frog-eaters," which the English have for so long applied to the French, is an eloquent indication of the formers' opinion of batracians as a source of food. When Kamehameha I, King of Hawaii, broke with his ancestors' feeding taboos in the presence of his Court, he was only equalling, in courage and stark determination, the present-day American who, in Paris, resolves to eat his first plate of Burgundy snails.

Certain feeding taboos of a religious origin take the form of an aversion which has all the strength and spontaneity of an instinct. I have known anthropologists who, though quite unprejudiced and aware of the historical background involved, have never been able to overcome the feeling of disgust created in them by some food or other that was forbidden to their ancestors.

The classic example of the influence of cultural tradition on feeding is the divergence in the attitudes of the stock raising populations of Asia and Europe with regard to the use of milk products. Whereas the peoples of Central and South Asia, as well as the Indo-European and Semitic groups, have always consumed the milk produced by their flocks and herds, often as a basic source of food, the Chinese, the Japanese and the peoples of South East Asia—who were formerly, likewise, stock raisers—have always had the most violent aversion to milk and its by-products.

This aversion cannot have stemmed from ignorance, since the Chinese were long in contact with Mongol and Turkish tribes for whom milk and milk foods were basic forms of nourishment. The Tibetans even go so far as to put rancid butter in their tea.

Various books published in recent years have revealed to us the hunger that still "stalks the world." We know that vast areas lack adequate food, and that the general health of their populations suffers in consequence. International bodies, such as the Food and Agriculture Organization, are trying to increase the food resources of regions whose inhabitants have not enough to eat.

Unfortunately, the introduction of new types of crops does not always suffice to solve these problems. The important thing is that the people should accept the new dishes which are set before them, and rid themselves of the emotional prejudices making for their rejection. Most human beings "like what they eat" rather than "eat what they like." But how is one to break down this resistance which, rooted in cultural tradition and developed in early childhood, ends by acquiring the apparent strength of an instinctive reaction?

This was exactly the problem which the United States Government had to face during the last war. It had to plan feeding, not only for an immense army, but for millions of workers, as well as for the liberated peoples. Farmers might produce a surplus, but it was important to avoid waste and to pursuade a population, that had always lived well, to change some of its habits.

The United States Government was wise enough to consult social scientists before embarking on a propaganda campaign designed to win public opinion over to the various measures which were required. It set up a

THE SUPERMARKET. Food is piled high in the great supermarkets of America where customers serve themselves and pay (far left) on the way out. The 18,000 fully-fledged supermarkets in the U.S.A. and the 70,000 smaller stores known as "superettes" now sell half the country's groceries. Shopping in the supermarket has become a weekly ritual of American family life. Many supermarkets buy meats, vegetables, eggs and other products directly from farmers. Left, chickens being prepared in supermarket warehouse. In most parts of the world, however, people still shop in open-air markets like the one at Bogota, capital of Colombia, (below).

Usis photos

committee of ethnographers, psychologists and sociologists, to study Americans' attitudes towards food and to suggest methods whereby those attitudes could be modified or even completely transformed. It was as part of this Committee's activities that the American psychologist Curt Lewin was able to carry out certain experiments in influencing opinion, experiments which have often been cited as a brilliant demonstration of the effectiveness of these disciplines when applied in the practical field.

Curt Lewin proceeded from the principle that a "food attitude" as simple as the American's aversion to certain parts of meat—the heart, the kidneys, the lungs, the entrails—could be quickly changed, once every implication of the situation had been analysed accurately and in detail, provided that every factor directly or indirectly determining people's behaviour towards food was considered.

Having established beyond any doubt that in the matter of food it was the housewives whose influence was paramount and who had the last word, he selected two groups of housewives as the voluntary "guinea-pigs" of the experiment. One group was indoctrinated by expert dieticians who gave lectures in order to explain the nutritive qualities of offal, its high vitamin content, and its good effect on health. This was followed up by explanations regarding the refined nature of the dishes that could be prepared with such pieces of meat; and recipes for cooking and dressing offal were distributed to the housewives.

The method adopted with the other group was quite different. A meeting was organized, at which one member of the group explained to the others the difficulties of the country's food situation, impressed upon them that by serving offal to their husbands they would be performing a patriotic service, and finally invited them to engage in a free discussion of the problem of "taboo" meats and their use. Care was taken to ensure that the discussion was general and that each housewife was able to express her doubts and ask questions. At the end of the debate, the meeting took a collective decision: each housewife undertook to try out the recipes suggested.

A few weeks later, an investigation revealed that only 10% of those present at the lectures had "crossed this cooking Rubicon." Of those, however, who had taken part in the discussions and undertaken to prepare offal, 51 % had duly fulfilled their undertaking. The same experiment was repeated several times, with regard to other types of food "rejects." And the results, too, were the same. Lectures and exhortations had therefore been of little effect as compared with decisions freely taken by a group, even a group as artificial as that constituted by subjects in a psychological experiment.

This shows us that in our "food attitudes," as indeed in all our attitudes, reason combines with other emotional factors to which the greatest regard must be paid if an attitude is to be modified. The housewives who decided to break with the "feeding taboos" agreed to do so purely because they were influenced by considerations having but a tenuous and indirect connexion with food itself.

For an attitude to be transformed, the values and institutions that give it its stability must be kept in mind. As was shown in the above example, it is by collective decision that attitudes can most easily be changed.

FAO - Pat Morin

THESE COOKS DID NOT SPOIL THE BROTH

by Claude Levi-Strauss

Photos © Paul Almasy 1957

'TELL ME WHAT YOU EAT and I will tell you what you are", wrote Brillat-Savarin, the French gastronomist. The art of cooking has built up countless melodies on a universal theme—from a savoury stew bubbling on a stove in Morocco to the gastronomic masterpiece of a Paris chef.

IF, as has been said, the art of cooking is to combine the flavours of different foodstuffs so as to blend or to bring out their contrasts, the process sounds simple enough to have been discovered by any one of the world's peoples. Yet this is not the case. It is not possible to combine different ingredients unless they are easily and simultaneously to hand nor can their flavours be mingled and harmonized without a knowledge of cooking that goes further than the mere heating of food.

Even the method of boiling food in an earthenware pot is not universally employed. Some peoples, who have no pottery, bring food to the boil by putting it into a vessel made of wood or bark filled with water and then dropping in heated stones. To other peoples, boiling is not known at all; they dig ovens in the ground and line them with hot stones, the food roasting slowly between layers of green leaves which give off moisture. Yet another method is to use the food as its own container, by stuffing the animal's body, or a flour-paste, with a mixture which cooks while this outer cover grills or roasts.

All these methods represent discoveries to which the human race attained only gradually. Even now certain very primitive tribes, like the Nambikwara of Central Brazil, just thrust the food they kill or gather (small animals and wild root-vegetables) indiscriminately into hot embers. The ashes that stick to it provide the necessary mineral salts. This primitive cooking is fatal to the sense of taste, for the palates of the Nambikwara cannot cope with any strong stimulus; they have a horror of salt, and even of hot food; when I offered them a boiled—and boiling hot—dish, they drenched it with cold water before eating it. True, this archaic attitude is exceptional. Many peoples, however, suffer not from want of cooking ability but from a far more serious lack—that of the means of production—as a result of which they can hardly ever rely upon more than one type of food at a time.

Ethnologists such as E.E. Evans-Pritchard and Audrey Richards have described how, in certain parts of Africa, the physical health and mental outlook of the native population are affected by the periodicity of foodstuffs. Many communities have enough to eat during only part of the year, when manioc, millet or rice is available. After these "fat months" come the "lean months," when the people have only what they can collect at random. The daily meal shrinks in size and, still more important, a diet rich in carbohydrates is suddenly replaced by one consisting almost entirely of such vegetables as marrows and melons.

We, with our well-assured food-supply, can hardly imagine the intensity of the sensations resulting from this substitution. The feeling of repletion abruptly gives way to hunger-cramps. Violent diarrhoea succeeds the contrary discomfort of flatulence and intestinal fermentation.

The native population thus finds that both their bodies and their spirits are radically affected by changes in diet. As Audrey Richards has said with so much insight, it is

not surprising that such communities regard food as perilous stuff, charged with every sort of magic influence. They therefore associate the sensations engendered by food with feelings to which we attribute a different origin ; the inner glow produced by alcohol is for them a sign of anger, whereas they connect fasting with the highest spiritual emotions. "I feel like a young girl again, I'm so lighthearted!" exclaimed one old African woman, on a day when she chanced to have eaten her fill.

In the history of the human race there is a memorable, yet unknown day: the date when man discovered how to keep two different sources of nourishment at his disposal all the year round and, by combining them, overcame the two great dangers to his nourishment—the scarcity of food, and its insipidity.

For to eat one's fill is not enough. As a French proverb has shrewdly put it, one must not lose "the taste for bread". The whole history of cooking is the story of a search for means of making bread tasty, of creating and fostering the appetite for a basic foodstuff—bread, rice, millet, maize or manioc, according to the region—which supplies energy but has little flavour. Meat came later; for a long time it was, and in many parts of the world it still is, a luxury reserved for the privileged. The real foundation of cooking throughout the world is carbohydrates enlivened by a condiment. Bread and onions, chapattis and chutney, rice and sauce made from fermented fish; millet, maize or manioc with pimentos—all these are simply variations on a universal theme, on which the art of cooking has built up countless melodies.

The difficulties attending this quest for flavours are illustrated by the great sea voyages of the 16th century, undertaken with what today seem the most trivial motives. Only some 400 years ago, Europe was organizing these tremendous expeditions chiefly for the purpose of obtaining spices.

This marks the birth of cooking in Europe and, perhaps everywhere else as well, since no culinary style seems able to do without certain products of American origin, unknown elsewhere in the world before the discovery of the New World—potatoes, tomatoes, peanuts, chocolate, vanilla and pimentos. A whole chapter of ethnology, in fact, remains to be written. It would describe the character and geographical distribution of the rules—some very simple, others incredibly complex—for obtaining, treating, associating and mingling the various basic foodstuffs. It would reveal the Polynesians as the inventors of soil-less agriculture, for some of these islanders succeeded in cultivating gardens on their coral reefs, in trenches filled with putrefied refuse; it would show that certain tribes, though extremely primitive in other respects, have performed the extraordinary feat of producing basic foodstuffs from poisonous plants such as manioc and acorns.

It would also show that certain primitive peoples have developed cooking that is full of subtleties. In one of his books on the Kwakiutl (inhabitants of Alaska, to whom hunting and agriculture were alike unknown), the distinguished American ethnologist Boas gives no less than 156 recipes for preparing various kinds of fish, fruit, and wild root-vegetables. One of these, chosen at random, consists in beating up snow until it has the consistence of whipped cream and then mixing it with fish-oil, molasses and uncooked berries.

Under the descriptive title *Zuni Breadstuffs*, a book by another ethnologist, Cushing, gives a fascinating account of the production and preparation of food in this Pueblo Indian tribe of New Mexico. A feast consists of 14 courses—rolls and wafers of maize in six different colours, various kinds of meat, offal, mutton sausages and blood pudding. All these are eaten with a meat-brush, a small, stiff-bristled affair which is alternately thrust into the dish and sucked clean.

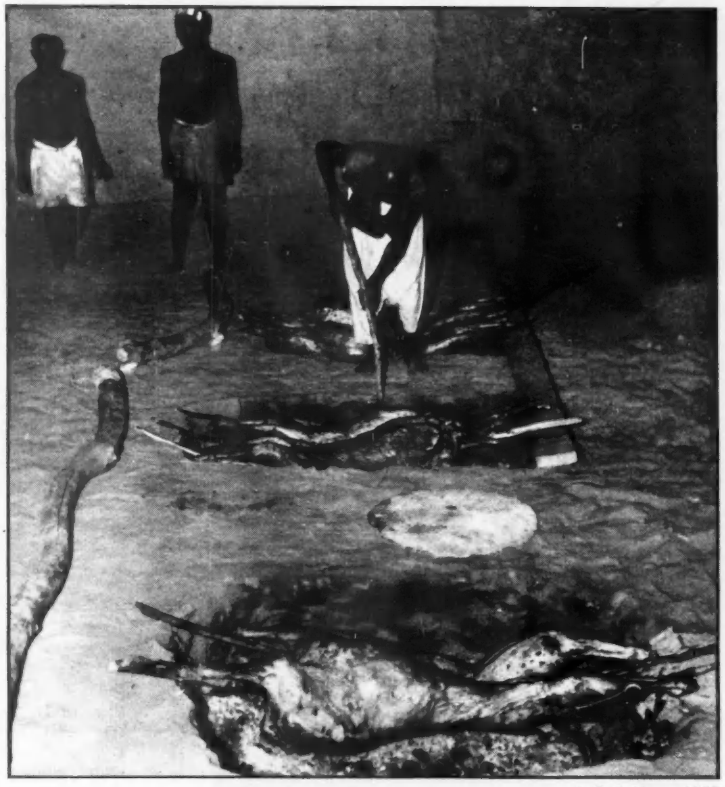
The consumption of food is a distinctly social affair. There are very few peoples who, like the Paressi of Central Brazil, take their meals in "solitary confinement", so as to conceal the "indecent" act of eating. Writing on the Kwakiutl, Boas describes the etiquette of a ceremonial feast—the culinary preparations, the arrangement of the different kinds of vessels and mats, the despatch of messengers with the invitations (which must be refused several times before final acceptance), the songs in honour of the guests, and the bestowal on each of them of a specially selected portion, befitting his rank.

There is nothing to surprise us in all this; Kwakiutl etiquette is not so very different from our own formal dinners. We too honour our guests with embroidered cloths, silver plate and with choice dishes. But our cooks, unlike the tribal ones, have forgotten what was once an essential rite—that of doing honour to the animals about to be eaten, so that their species may not vanish from the earth. Thus we sometimes come across disconcerting instructions in native recipes, such as the following (originating with the Tsimshian Indians of the northwest Pacific coast), which I offer as food for thought to housewives, on concluding this brief introduction to culinary ethnology.

When fat is to be extracted from olachen, the fish are first dried in the open air. They are then boiled in vessels filled with water into which stones heated in the fire are dropped, the fat being skimmed off as it rises to the surface. The remainder of the fish is afterwards spread on a sieve above some recipient, and an old woman presses it to her naked breast as hard as she can, to squeeze out the rest of the fat (men are strictly forbidden to perform this degreasing operation).

The cakes of fish are then heaped up in a corner of the hut, where they lie rotting until they swarm with maggots. Despite the intolerable stench, they must not be thrown away.

Moreover, none of the "cooks" concerned is allowed to wash; everyone must remain covered with filth until the end of the proceedings, which may last for two or three weeks. Otherwise the fish would be "ashamed" and would never come back again.



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WEST AFRICAN DELICACY is the metchoui for which a sheep is spitted and roasted whole over a shallow pit of glowing embers. Here, cooks prepare for a feast.

DO YOU KNOW THESE RECIPES?

The sharing of kitchen secrets is of special interest when women of different nations find themselves together as they do in Geneva, Switzerland, where many members of U.N. staffs and their families are located. Some favourite recipes of women from all over the world have now been collected and published by the U. N. Nursery School, Geneva, as an international cookbook. It offers some typical dishes of more than 20 countries. (Cookbooks obtainable from U. N. Nursery School, 1, avenue de la Paix, Geneva, or from U. N. Nursery School, 35, rue de Boulainvilliers, Paris 16, France.) Here are a few of these recipes.

CHINA. Chicken and almonds. — Chicken (about 3 pounds), 1 cup mushrooms (fresh), 1/2 cup fried almonds, 3 small carrots, 1 leek (cut into inch-long shreds), 2 tablespoons soya sauce, 2 teaspoons sugar, 1 tablespoon wine (or dry sherry), 2 teaspoons cornstarch, salt to taste, 2 tablespoons oil for frying.

Bone the chicken, remove skin and cut meat into half-inch pieces. Put leeks, soya sauce, sugar, wine, cornstarch and salt into bowl, mix and add cut-up chicken. Mix well so that chicken can absorb flavours of sauce. Peel and dice carrots (same size as chicken) and boil until tender. Clean mushrooms (preferably small size) and boil until done. Add 2 tablespoons oil in pan and when hot, add the chicken. Cook two minutes, turning all the time. Add boiled carrots and mushrooms and a little water if too dry, and cook a further minute. Just before dishing up, add fried almonds. Mix well and serve.

GREAT BRITAIN. Scones. — Half a pound of flour, 1 teaspoon baking powder, 1/4 teaspoon salt, 1 piece of butter the size of an egg, 1/4 pint milk (equivalent to 12 tablespoons), 1 teaspoon sugar. Sieve the flour and salt and baking powder together and put them into a bowl. Rub in the butter and add the sugar. Mix to a soft dough with the milk, using a fork, and turn onto a floured board and shape into a round. Roll out to about an inch thick and cut into small rounds. Put onto a greased baking sheet and bake in a hot oven for 10 minutes.

ITALY. Zuppe pavese. — Fry in oil two medium slices of bread and put them in each soup plate. Over these slices of bread, break two fresh eggs and season them with salt and grated cheese. Pour in very hot bouillon, gently so as not to break the eggs.

SPAIN. Gazpacho (Andalousian). — Soak half a loaf of white bread in water. Purée it with a passe-tout or put in an electric blender with a clove of garlic, raw tomatoes and cucumbers. Add olive oil and vinegar to taste.

Add enough water and a few ice cubes to liquefy it to soup consistency. Serve very cold topped with chopped green peppers.

SCANDINAVIA. Herring salad. — Cooked meat, cold potatoes, red beets, 1 sliced onion, salted and smoked or pickled herring, sour mustard.

Dice the following ingredients until they make a mushy mass: meat, potatoes, red beets, onion and the well-soaked herring and mustard. If still too dry and won't adhere together, add a little vinegar from the red beets. Flavour with sugar.

Make open sandwiches with this spread on bread and decorate with slices of hard-boiled eggs, or if you prefer, the sandwiches can be topped with fried eggs.

IRAN. Summer soup (cold). — Add salt and pepper to three yoghourts and beat well. Add mint (fresh or dried) chives and one chopped cucumber and also a handful of Corinth raisins and 1 cup of water. Chill and serve as an entrée.

SOUTH AMERICA. Caldillo de congrio (Fish Soup). — Three and a half lbs of red conger-eel, 1/2 cup olive oil, 1 cup white wine, 3 1/2 lbs of potatoes, 6 tomatoes or 1 can tomatoes, dash powdered pepper, 1 cup lemon juice, 2 small onions, 3 carrots, garlic, parsley, salt, 2 cups water, sliced lemon. Clean the fish, cut in pieces, salt it and sprinkle generously with lemon juice. Cut onions very finely and fry. Add carrots sliced and then 2 cups of water, garlic salt, pepper and parsley. Boil all this from 20 to 25 minutes.

Add to this same pot peeled tomatoes.

EATING IN JAPAN: TWO PLEASURES IN ONE

In ancient Japan it was the custom to place food on oak leaves and to break off twigs from the forest trees as chopsticks. Today Japanese tableware expresses the same artistic spirit, the vessels being chosen to harmonize with the shapes and colours of foods. The basic materials used are white rice, tender fish, vegetables of varied hues, *miso*-soup with its fragrance, and green tea. Right, table set for *kaiseki-zen* (formal Japanese dinner), a ceremonial meal with the principal course (centre), the second course (left) and the third course brought in their respective order. Among them are foods to be eaten and others "which may only be observed respectfully".

Koon Bunka Lab. Tokyo

© Paul Almasy 1957

STREET-CORNER COOKSHOP in Valencia, Spain, is frying *buñuelos*, a favourite Spanish delicacy. Made with a flour paste, fried in oil and dipped in sugar, *buñuelos* are the Spanish version of doughnuts. On certain feast days they are made at home and eaten with chocolate or honey.

without seeds, another layer of potatoes cut lengthwise and in fours, and then another of fish, and so on until you finish. Let boil for 20 minutes and add the wine.

INDIA. Modified curry. — Brown finely chopped onion in a little fat, add finely chopped green peppers and tomatoes and simmer until thick. Then add 1 tablespoon curry powder, some tumeric, a little salt and paprika and cayenne. (The latter to taste, but about 1 tablespoon salt and 1/2 tablespoon of paprika should be adequate). When sauce is smooth, add diced meat or vegetables (mutton or egg plant are most suitable). Simmer over slow heat (the secret of a successful curry lies in slow cooking) until nearly done. A little sour cream may be used towards the end and peas may be added to a meat curry if desired. Add only very little water at a time and take care not to produce too liquid a curry.

If served with rice, be sure to either rince your rice in a colander with boiling water, or dry it in the oven till grains remain flaky and separate. These ingredients are planned per pound of meat or vegetables.

HAITI. Rice and red beans. — 2 cups of rice, 1 1/2 cups beans, 50 grams of smoked pork, 4 ounces of salt pork. Prepare and wash the beans and put them to soak for 12 hours. Put in a saucepan 8 to 10 cups of water, the chopped up salt pork, a pinch of thyme, a sprig of parsley and some finely-chopped chives and the beans. When the beans are cooked, but still firm, drain them. Put into a saucepan four tablespoons of butter, and the smoked pork finely chopped, and leave until it browns a little. Add the beans and let them fry until they are crusty. Add four cups of water in which the beans were cooked, a clove of garlic, and salt as desired. When in full boil add the rice which has been washed and dried. Reduce the heat; the water should continue to boil until it has completely evaporated. When bubbles appear in the rice, cover the saucepan and let cook for 25 to 30 minutes.

FRANCE. Tendron de veau bourgeois. — Brown in a saucepan 50 grams of lean pork with an equal amount of butter. Add 1 1/2 pounds of veal shin, brown at medium heat and uncovered for twenty minutes. Moisten with half water, half white wine, add mixed herbs, a dozen small onions, one or two chopped tomatoes and some small carrots. Add salt and pepper and let cook over a slow fire for one hour. Serve the meat surrounded by the vegetables and cover with the concentrated juice.

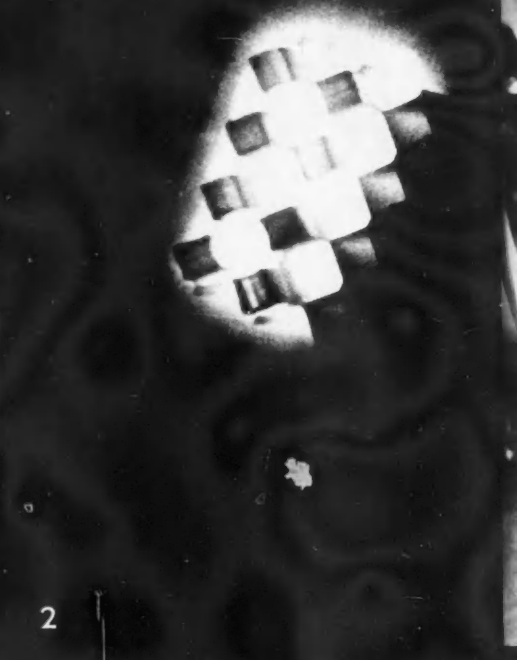
UNITED STATES. Chocolate chiffon pie. — 1 tablespoon Knox gelatine, 1/4 cup cold water, 6 tablespoon cocoa or 2 squares of bitter chocolate, 1/2 cup boiling water, 4 eggs separated, 1 cup sugar, 1/4 teaspoon salt, 1 tablespoon rum, 1 baked pastry shell.

Soak gelatine in cold water. Mix cocoa or chocolate with boiling water and stir until smooth. Dissolve the softened gelatine in the hot mixture. Beat egg yolks slightly, add 1/2 of sugar and beat until foamy. Add salt and the chocolate mixture. Chill in refrigerator tray until edges begin to set. Beat egg whites stiff and add gradually the other 1/2 cup of sugar. Whip the chilled mixture until foamy, gradually adding the rum. Fold in the egg whites. Pour into pastry shell and chill. Serve with whipped cream seasoned with sugar and vanilla, and top with a dusting of cocoa.

ATOMIC FOOD

Radiation opens new vistas in conservation of food

1



2

In time, atomic energy may help to dispel the spectre of hunger from the world. It can guide plant scientists to improved ways of raising crops, teach them to combat insect pests and plant diseases more effectively, and even create new types of plants yielding a larger harvest. Using radio-isotopes as "tracers" scientists have learned much about plant growth. Now, the use of atomic radiation has opened new horizons in the field of food conservation. Five years of painstaking research have shown U.S. scientists how exposure to radiation affects food, as seen in photos (4-5). Six-month-old sprouting potato makes striking contrast with two-year-old atomic-preserved one; all onions here are same age, lower ones were exposed to radiation. (6) Quick, efficient method of sterilizing food by exposing it to radiations from electron-generator. Wrapped in cellophane, food is instantly sterilized. Radiation passes through package but leaves no trace, so food is safe to eat. (7) Potatoes properly exposed to radiation do not sprout, wither or spoil for two years. This portable atomic-processing unit can be mounted on a truck and moved into a field where it can quickly "preserve" an entire potato crop. Conservation by radiation offers great promise, but is still very much in the experimental stage today.

USIS photos

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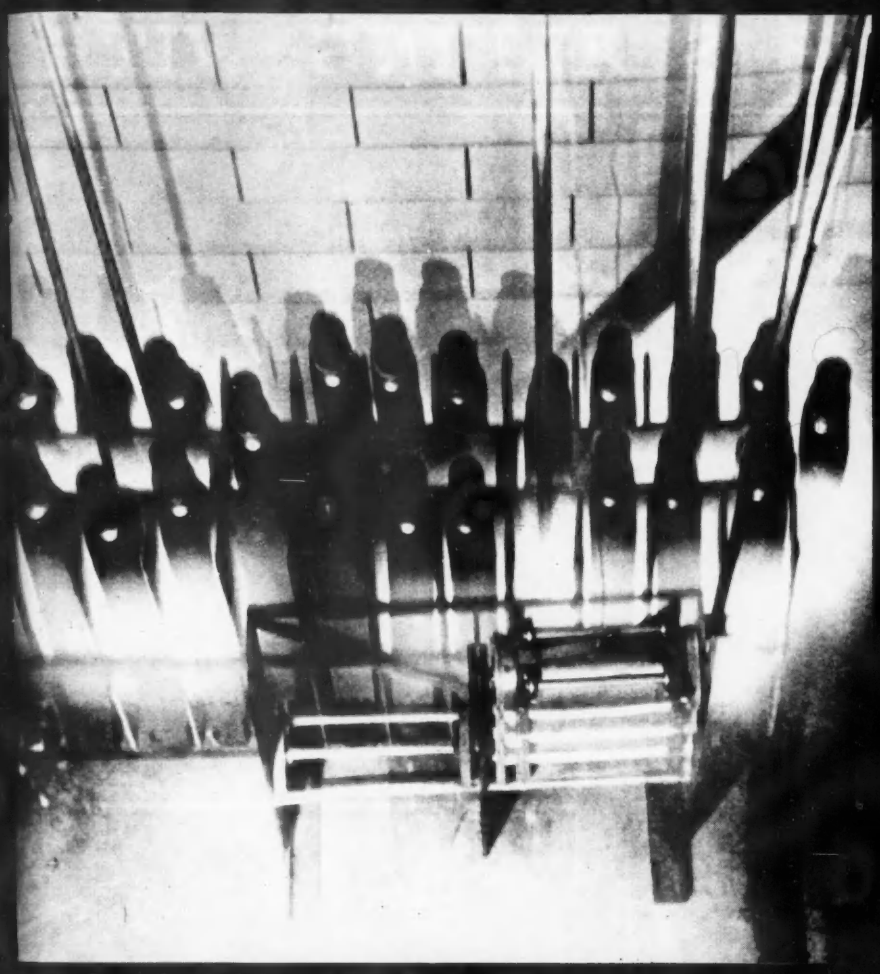
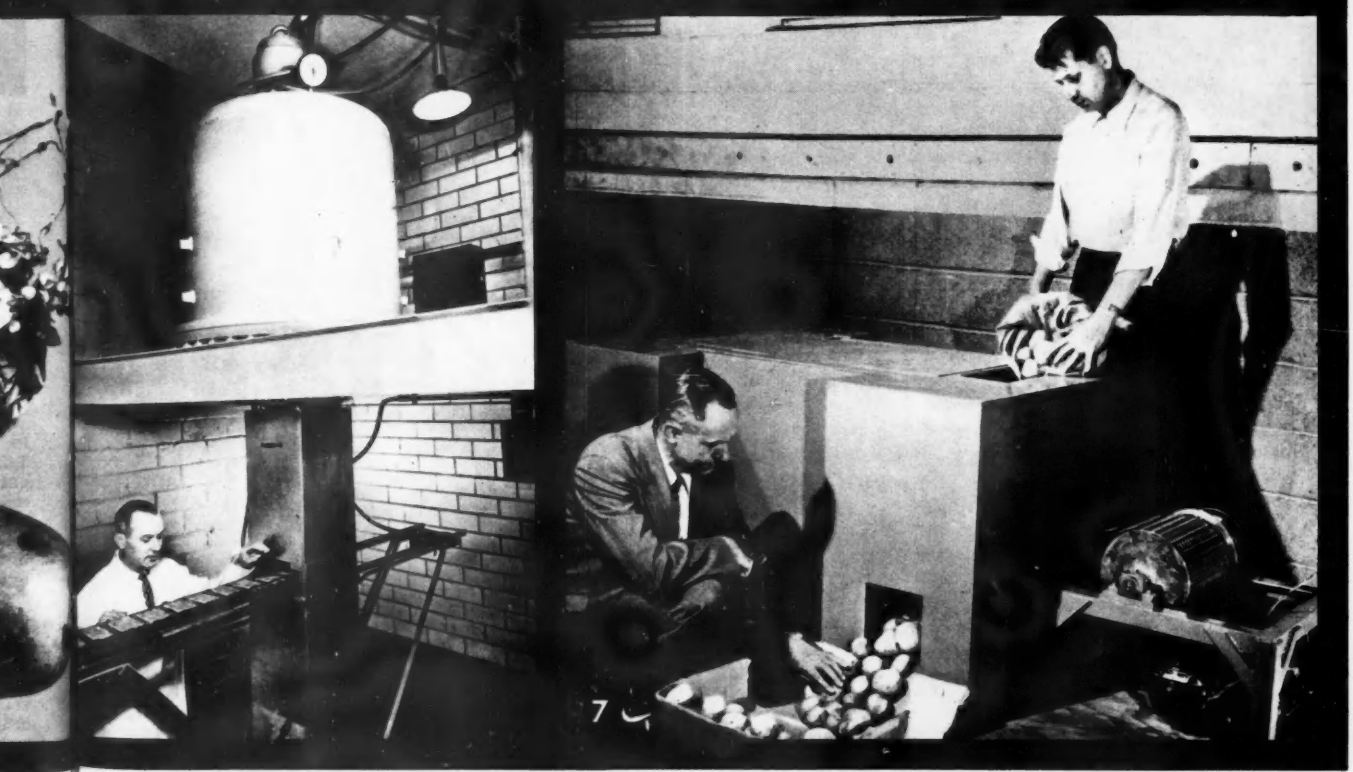
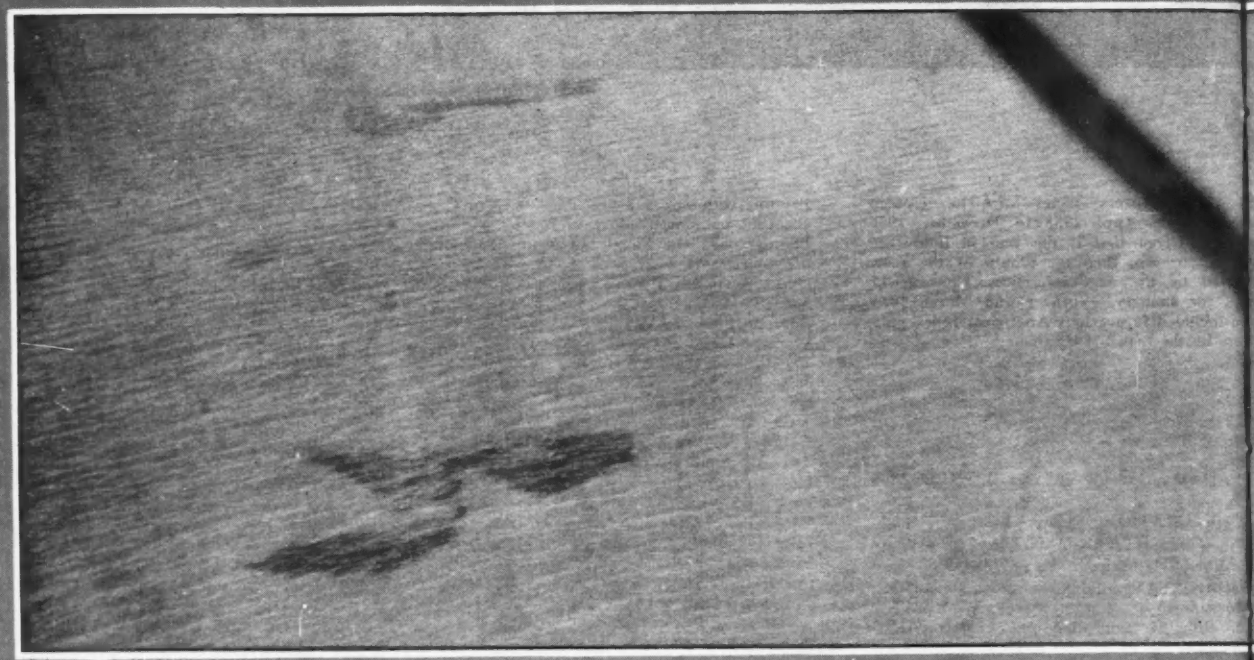


The rapid progress achieved through atomic food-preservation research in the U.S.A. during the past few years will be accelerated by the opening of a new atomic plant capable of processing 1,000 tons of food a month. Operation of this plant, starting next year, is expected to perfect the "cold sterilization" process considered as one of the most beneficial uses of atomic energy yet discovered. When the preservation of food without refrigeration becomes commercially practical, it will revolutionize world food storage and distribution. Scientists have discovered that food retains its original flavour if frozen before being exposed to radiation. The cans of food to be preserved are then placed in metal tubes (1) which are lowered into a deep water pool (3). Here radiation "cold sterilizes" the food immediately. Without applying heat, cold or chemicals, the spoilage bacteria in the food are killed. Photograph (2) was taken at U.S. Argonne National Laboratory, shows cylinders of food being sterilized at bottom of 50,000 gallon water pool. Eight cylinders are placed between atomic radiation elements, each is rotated so that all food cans receive uniform exposure. Water in pool protects workers from dangerous radiation, but gives full view of operations down at the bottom.

USIS photos



FISH STALKING WITH



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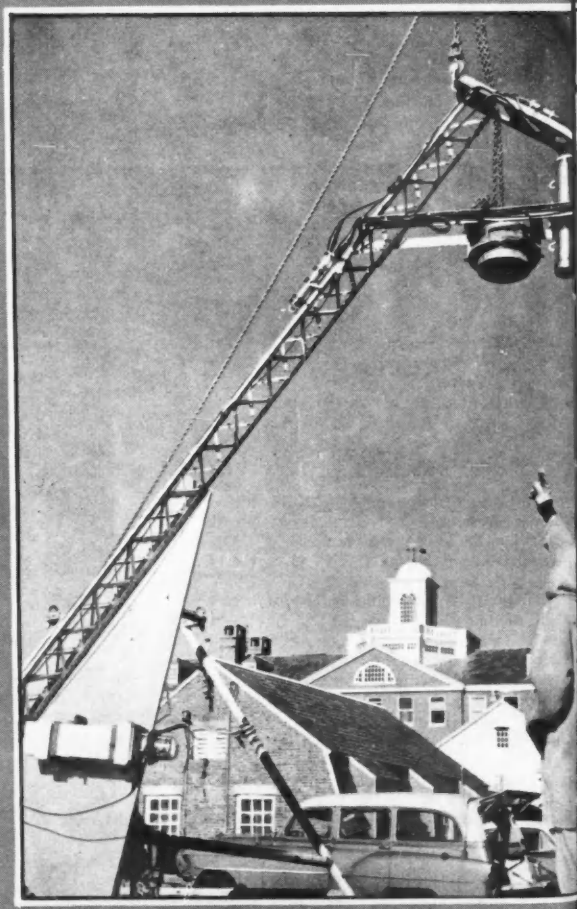
Millions of people need more protein in their diet and they could get it from fish. But the sea—a vast storehouse of food and mineral resources covering 139 million square miles, or two and a half times the world's land area—has hardly been tapped to meet the needs of Man. Today, however, scientists are aiding fishermen to make bigger catches (fish production is now about 27 million tons annually compared with 22 millions tons in pre-war days) by providing better equipment for locating and catching fish and by devising more efficient operating methods. Photos on these pages show some ways in which science is working with the fishing industry. (1) School of menhaden (largest of shadows in water is made by about 250,000 fish) is spotted from the air. (2) Catching vessels directed to the school by radio set their net around the fish. Remaining photos show equipment used by scientists at Woods Hole Oceanographic Institution, U.S.A., to delve into the ocean and study plant and animal life. (3) Acoustical view finder for photographing sound scattering animals whose presence is recorded on an echo-sounder. Light is supplied by electronic flash (lower left). (4) Underwater TV camera used by research vessel *Bear*. (5) Biologist demonstrates on dead tuna his tagging method. By marking many large tuna this way scientists hope to learn more about their migration and growth. Unesco aids development of oceanographic research, has set up an International Advisory Committee on Marine Sciences. The U.N. Food and Agriculture Organization's Fisheries Division works to increase fish production. It has given aid and advice in construction of new fish harbours, exploitation of fishing grounds and has helped to introduce better fishing methods and equipment in many countries.

Photos Ian Hahn - Woods Hole Oceanographic Institution.



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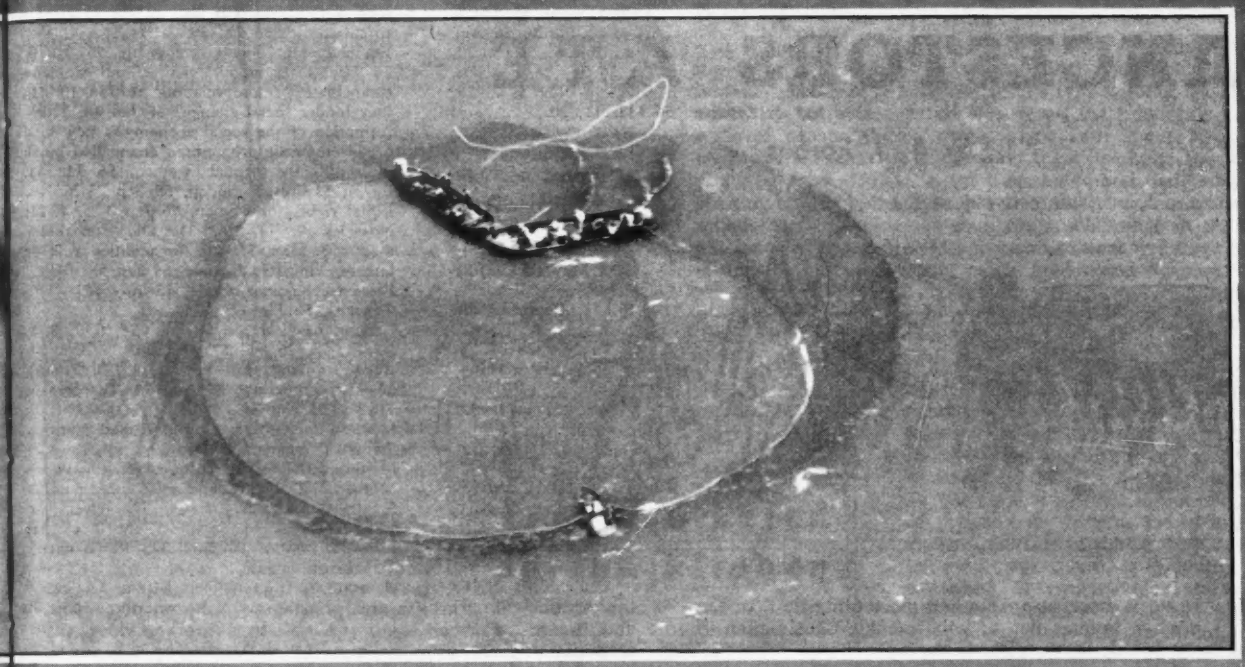
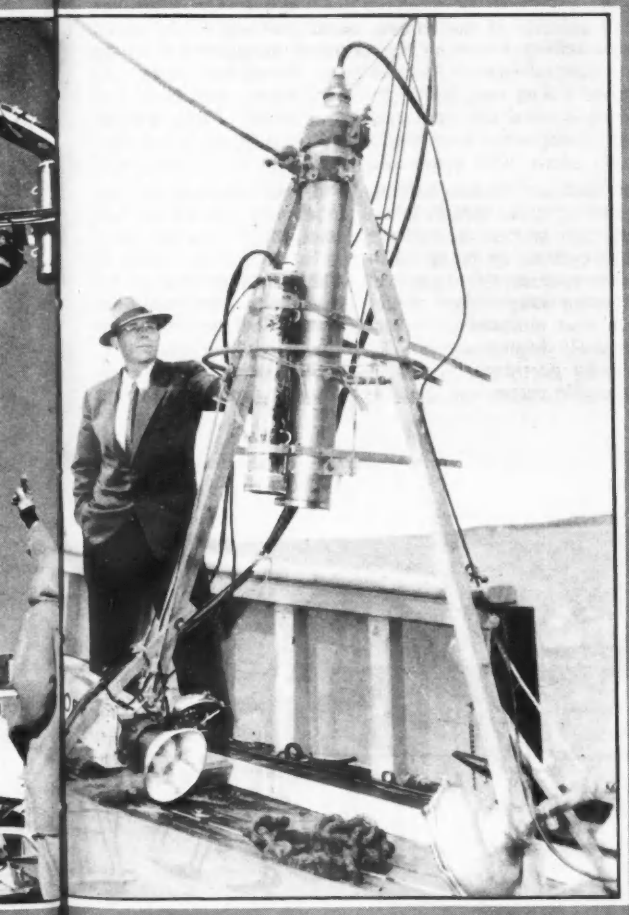
AND SPOTTER PLANE

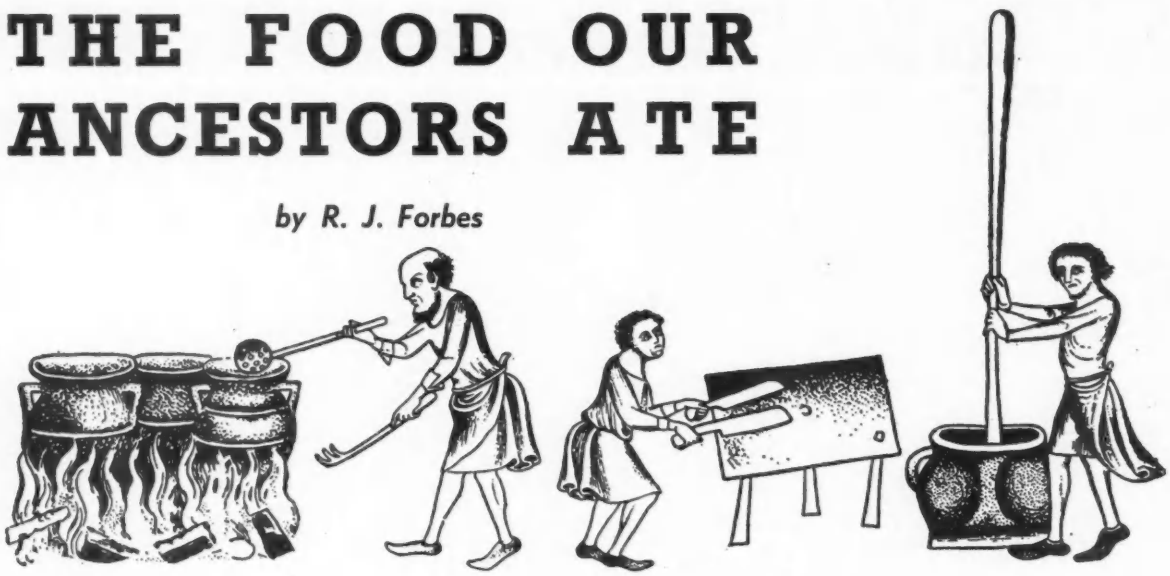




5

THE FOOD OUR ANCESTORS ATE

by R. J. Forbes



NOTHING is more surprising and more fantastic than the story of human diet, of what mankind has chosen to eat and drink throughout the ages.

A mere two hundred years ago we find ourselves in a world without pressure cookers, without pasteurization, evaporated foods and drinks, deep-freezing, refrigerators and canned food. Even the most civilised parts of the world were then liable to suffer from hunger caused by failure of crops; the lack of proper and sufficient fodder crops necessitated the wholesale slaughter of cattle in the autumn and condemned many to eat salted and smoked meat for months on end.

Another three hundred years back and we are in a world that had no potatoes, maize, coffee, tea or tobacco nor any of the foodstuffs and natural products of the Western Hemisphere or the Far East. Gin and other spirits were only just coming into general use and the first bye-laws against drunkenness are evidence of their effect. Only a few generations later the sailors of the Dutch navy were on the verge of revolt because gin was substituted for their daily ration of ale.

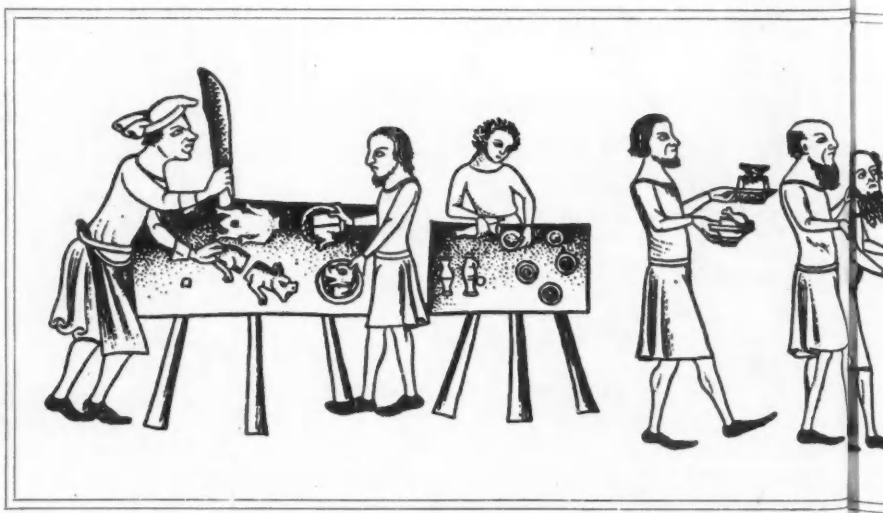
Such examples show how difficult it is to appreciate the tastes and food habits of ancient man; the further we go back in history, the stranger the situation becomes.

In the Palaeolithic, food-gathering era man consumed his food either raw or roasted. Boiling only became possible with the advent of heat-proof vessels and pottery much later. We can obtain a glimpse of this primitive menu by studying people like the Eskimos, who eat most of their animal food raw and only occasionally resort to roasting (keeping the inside underdone), but always consume their food either cold or lukewarm.

There was, of course, plenty of vegetable food available, but we have no idea of the extent of early man's menu, since most of the remains have perished and only rarely are well-preserved bodies found, the contents of whose stomachs we can analyse. The Upper Palaeolithic hunter-fishers of Europe ate the meat of reindeer, wild horses, bison and hares. They caught the Arctic willow grouse and ptarmigans, salmon, pike, trout and bream. Further south the red deer, the roe deer, the wild pig and the aurochs were killed and eaten. Limpets, mussels and honey were also collected.

The Mesolithic hunter-fishers lived almost exclusively on the land animals of the forests, occasional sea birds, ducks, geese and swans. Fishing concentrated on pike, but on the coast occasional stranded whales were cut up and eaten, and seals, cod, conger eels, haddock, crabs, bream, ray, skate and certain types of shark were caught for food. From the few remains of vegetable food we know that they ate hazel nuts, water lily seeds, wild pears and berries.

The Neolithic settlers had learnt to cultivate cereals and had begun to breed domestic animals; having pottery at their disposal, they started the various cooking operations we know and thus opened up many new ways of preparing food and making new foodstuffs digestible. They had inherited the art of preparing soups from earlier generations who could on occasion heat mixtures of water and herbs by the immersion of previously heated stones. Now, with cooking pots, they could make porridges in pots by direct heating over stones. More durable pastes and doughs were sometimes made from



such porridges and man discovered fermentation and hence the earliest alcoholic beverages prepared from fruits (grapes), honey and cereals (barley) containing natural sugar.

After the advent of agriculture, venison gradually disappeared from the menu and meat was obtained from domesticated cattle, pigs and sheep. Fowling was still important as a means of securing oil for lamps, and fish now also served for the feeding of cattle. Salmon, sturgeon and eels were caught and smoked or dried for consumption during the winter.

The Neolithic farmer supplemented his cereal dishes with acorns, beech nuts, hazel nuts, elderberries, strawberries and raspberries. The roots of certain reeds, the bog bean and the water nut were collected and groats (crushed grains) were prepared from wild grasses.

A similar evolution took place in the ancient Near East, where records dating from about 3000 B.C., left by the civilizations of the valleys of the Nile, Euphrates, Tigris and Indus, begin to shed light on many points which remained obscure during the prehistoric phase. We find that cereals were sometimes parched or roasted to prepare them for milling or to make them more suitable for storing, an operation which we should distinguish carefully from the drying of unripened grain sometimes practised in prehistoric Europe with the object of making up for the lack of sunlight and hastening the ripening of the grain.

The machine age really started in the kitchen

In the Near East animal and vegetable foods differed slightly from those of prehistoric Europe mentioned above. In ancient Egypt cereals formed a substantial part of the food consumed and consisted mainly of emmer, barley and some naked wheat. The Egyptians knew no less than 30 different types of bread, cakes and sweetmeats. Beans, peas and lentils were eaten except by certain groups of priests who were forbidden to touch them. Vegetable food consisted largely of water melons, lettuce, artichokes, cucumber, endive and radishes. Dishes were flavoured with onions, garlic and leek, and fruit such as dates, figs, nuts of the doum palm and pomegranates were available.

There was a variety of vegetable and animal fats and oils to choose from and the milk and cheese of goats and cattle were used. Butter was sometimes consumed in the form of ghee. Meat was obtained from cattle, goats and sheep, but it was expensive and the poor consumed huge quantities of pickled and salted fish and all kinds of geese and ducks, so plentiful in the marshes along the Nile.

In ancient Mesopotamia meat appeared even more rarely on the tables of the poor, who ate mostly dried, pickled and smoked fish. Here sesame oil took the place of the olive oil used by the Egyptians, for the olive was never at home in Mesopotamia. However, the "country between the two rivers" had an abundance of fruit and at an early date the inhabitants ate the cherries, apricots and peaches which slowly moved westward but did not reach Italy until the beginning of our own era.

A large part of the cereals grown was still consumed in the form of porridges or cakes baked with flour, oil and honey. Bread of a hard biscuit-like type without leaven was baked on hot stones or embers or on the previously heated walls of beehive-shaped ovens. Not until about 2000 B.C. were such ovens provided with trays to hold the loaves prepared from dough. Most households had their own clay cooking ranges with a flat top and circular flue, but sometimes groups of households shared a communal range in the open and some of the ancient Mesopotamian towns had large ranges in the temple annexes on which food could be cooked for the hordes of servants. The baker of these ancient times was often also a purveyor of food in general and a cook-shop keeper who provided food for regular clients.

The ancient kitchen was the origin of many if not most of our technical operations. Indeed, the ancient technologists use culinary terms when they describe the "boiling" or "washing" of ores and other industrial materials. To the kitchen we owe the development of grinding machinery, the rotary mill and its descendants, which were developed from the quern, a primitive mill consisting of two circular stones, the upper one turned by hand, by which the grain was crushed and ground into flour. To the kitchen we also owe the mortar and pestle and the sieve. The latter, made of rushes, reeds or papyrus, was still a primitive apparatus with unequal meshes and we need not wonder that the ancient bread, even in Roman times, was full of grit and stones which could not be properly removed with such makeshift sieves, even with the better Greek basket-shaped sieve.

We must also realize that the bread of the ancient Near East was mostly unleavened and therefore a hard, gritty, biscuit-like cake rather than the fluffy white bread we are accustomed to. Leaven was known in Egypt by about 1500 B.C. and was used from time to time. The ancient Greeks and Romans did not use it until the beginning of our own era, when the Romans got to know it from the beer-drinking Celts of Spain and Gaul and used it for luxury bread. This leaven was mostly produced from millet.

Apart from milk, a mild beer prepared from emmer or barley was the common beverage of the ancient Near East. Wine was grown but only the rich drank it. On the other hand

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Medieval meals far from colossal

There is a medieval saying that angels need to feed but once a day, mankind twice, and beasts three times or more. The Middle Ages were reputed to have been a period of colossal meals washed down with plenty of wine and beer, but we now know that these feasts were exceptions and that the diet of the masses was plain and mainly vegetarian. Illustrations, taken from a 14th century English book of psalms, show (top of p. 20) a medieval kitchen staff at work; (far left) preparing the roast for the table, and (left) a meal in progress. Guests, seated at a trestle table, use knives and spoons. In England forks were first used for eating meat in 17th century.

Figures courtesy of the Trustees, British Museum, taken from *A History of Technology*, Clarendon Press, Oxford

FOOD OUR ANCESTORS ATE *(Continued)*

LITTLE MEAT & NO POTATOES

the Greeks and Romans promoted viticulture and drank wine generally, though always diluting it with water. They regarder beer as a barbaric drink, and when they colonized the coasts of the Mediterranean they imported viticulture and wine-drinking. It was not until Roman times that Gaul, the present France, became a wine-growing country. Both in Spain and Gaul beer was the original drink which only disappeared in the early centuries of the present era.

The large-scale production of sesame and olive oil and of fermented beverages led to very important technical inventions. In order to express the juice of the olive and the grape, the ancient Near East had invented the bag-press and the roller-mill. The Greeks added the important lever-press and the Romans invented the screw-press and the wedge-press, all of which were used primarily for the production of oil and grape juice.

The diet of ancient Greece and Rome differed little from that of the ancient Near East. The primitive cereal, einkorn, had come to Europe from the East but disappeared as emmer, naked wheats and barley spread to the West in its wake. Hardy crops like oats and rye were developed in Northern Europe but did not come south before the first centuries of our own era. The classical world depended mainly on home-grown emmer and barley but its preference for the naked wheats resulted in large-scale imports of these grains from Southern Russia, Egypt and North Africa to supply the cities which specialized in olive growing and viticulture.

The "corn dole" played an important part in Roman politics and so did the imports of grain in ancient Athens.

Flour was still mainly produced at home and the professional miller and baker played scarcely any part before the first century B.C. Coarse cloth and linen sieves gave a somewhat better flour than had previously been obtainable. Most of the ancient flour was simply whole-grain meal; among the sifted flours an 80% extraction was standard. Bread and groats were the staple food of Greece and Rome.

A large proportion of this farinaceous food was, however, still consumed as a porridge, such as the "maza" compounded of flour, honey, salt, oil and water, and the "turon" consisting of flour, cheese-gratings, eggs and honey. Such porridges and broths continued in favour up to the very end of the Roman Empire. Many Greek dishes were sprinkled with barley flour before cooking.

Watering down the milk was an old Greek custom

From the Bronze Age onwards the Greeks had a considerable variety of vegetables at their disposal; they liked to season them with all kinds of spices. Mutton and beef were sometimes added, but they were costly, and only the rich could afford poultry and game. The normal diet contained many dishes made with milk and cheese, and fish and other sea-food was very common. From excavations we know that apples, pears, plums, pomegranates and almonds were eaten.

Notwithstanding the Homeric allusions to large quantities of meat, food was mainly farinaceous porridges of corn flour and broths of beans and pulses with dried and pickled fish and vegetables figuring on the table in Homeric times. Curiously enough, drinking milk as such was considered intemperate and it was always watered down. Together with barley water and wine diluted with 1-3 times its volume of water it was a common beverage.

By the fifth century B.C. bakeries were springing up in the richer cities and fish was becoming even more common. Spices such as cumin, coriander, sesame and silphium were imported. Barley bread was now considered fit for the poor

EARLY ROMAN KITCHEN. The oven is on the right, and ingredients are being stirred into a large bowl standing on it. Carving from a monument at Ingel, near Treves. Top of page, a Roman baker's oven. Men on right are kneading dough. Part of a frieze from monument of Roman baker, Eurysaces, first century B.C. Ancient Roman bread, hard cake baked in hot embers, was dipped in milk before being eaten.

From *A History of Technology*, Clarendon Press, Oxford.

only and the richer people indulged in wheat bread. Pickled sauces such as the "Garon" were very popular; this was prepared by leaving fish to ferment in a salt brine for some 2-3 months. Cookery books and the earliest writings on dietetics of the fourth century testify to a great variety of dishes prepared from the ingredients mentioned. To the Greek doctor however, "diet" meant only a prescription when to eat, not *what* to eat!

The diet of the ancient Roman farmer was very much the same. His "puls", like the Greek "maza", was a thick porridge consisting of flour prepared from emmer, barley or beans and seasoned with salt. Green vegetables were added and groats were frequently eaten. The flat, hard bread baked in embers and ashes was usually soaked in milk before being eaten. Beans, peas, turnips and onions complete the original vegetarian diet. Apples, plums, pears, pomegranates and figs were known; garlic, salt and garden herbs were used to season the food. Milk, cheese, honey and olive oil completed the diet.

About 300 B.C. a change occured owing to the spread of Greek civilization from the South. The taste for wheat bread developed and fish became far more popular. The specialization of the Italian farmer in growing olives and fruit increased the consumption of almonds, chestnuts, hazel nuts and walnuts. Oriental fruits like cherries, peaches and apricots were introduced into Italian orchards during the first century B.C., but lemons and oranges did not come until much later when the Arabs brought them to Spain.

Meat also became more popular as northern Italy specialized in raising livestock for the markets of Roman and other large cities. However, the overrefined taste of the rich mentioned by the poets, satirists and cookery books of the Imperial period did not spread to the lower classes, and the soldier's diet remained basically the same as that of the sturdy Roman citizen of old.

SEABORNE VINEYARD. Archaeology suggests that the vine was cultivated in the Aegean in the Early Bronze Age. Greeks were great wine lovers even from the days of Homer. Here, Dionysus, Greek god of wine, makes his legendary journey. According to one version he changed an attacking band of pirates into dolphins, to continue his lonely but festive journey with drinking horn in hand, the vines happily surviving. Illustration decorating an Attic bowl, dating from about 500 B.C.

© Prof. Max Hirmer. Munich. From *A History of Technology*.

The Middle Ages are popularly held to have been a period of colossal meals washed down with excessive quantities of wine and beer. Further study of the chronicles proves that these were exceptions and that the diet of the masses was plain and mainly vegetarian. In about 1325 Mahaut, countess of Artois and Burgundy, said that one meal was the rule of angels, two that of mankind and three or more that of beasts. The many holy days of banquet repute were counterbalanced by many fast days.

Most of the rich shared the diet of the artisans and townspeople which consisted of a kind of soup in the morning and porridge or soup, fish and vegetables in the evening. Bread and cakes were consumed in large quantities but pastries only very rarely. Fish, fresh, dried or salted, was eaten much more frequently than nowadays, meat being still very expensive and reserved for the Sabbath. Water and milk were drunk more frequently than beer and wine. The invention of the gutting of herrings by Willem Beukelszoon of Biervliet (Flanders) in about 1375 was an important addition to the methods of preserving sea-food, large quantities of which appeared on the tables of inland regions.

Slices of bread served as plates and napkins

BACON, beef, pork, chicken and eggs appeared on the tables of townsmen fairly frequently and as their wages generally rose in the course of the Middle Ages we find that they started to indulge more in wheat bread and such delicacies as *pré-salé*, that is mutton obtained from sheep fed on the drained salt marshes along the coast, as well as in pork and goat's meat. Leavened bread appears to have been as common as unleavened cakes or dumplings.

Only the very poor ate millet bread or used flour made from buckwheat or "saracen corn", which was introduced during the fifteenth century from Slavonic countries. Oats and rye were often used; cress, radishes, parsnips and carrots featured on the menus. Towards the end of the Middle Ages, Italy produced the new types of food we call macaroni and vermicelli, prepared from desiccated dough of cereals and rice. It is possible that these first appeared in Southern Italy.

Butter, beef fat and lard, rape seed oil and cole seed oil were substituted for the olive oil of the ancients, for the olive would not grow in these northern regions. The only sweetening agent was honey and this accounts for the extent of beekeeping during the Middle Ages.

People liked heavily spiced dishes; we find herb gardens in every town and manor to supply these herbs all the year round, and such Oriental spices as pepper appeared on the tables of the rich, though few could afford them. Many of these herbs and spices were eaten because of their reputed medicinal properties.

Table manners also underwent a change. Food was usually eaten with knives (of the hunting knife type), spoons and the hands. Forks were used in the kitchen only. Slices of bread served both as plates and napkins, but trenchers (wooden roundels) and bowls of wood were also used. Salt containers, often in the shape of a boat, were essential since medieval people used much more salt than we do and added many spiced sauces to their food. The rich used pewter, but as tin grew more and more scarce, glazed pottery gradually came into more general use.

Thus at the threshold of modern times diet was still preponderantly vegetarian, fat and meat being used sparingly.

The language of food

"Butter would not melt in his mouth"... "It's like taking candy from a baby"... "He who would eat the nut must first crack the shell". The English language offers many examples of proverbs like these which relate to eating and drinking. But the taste for metaphors in a gastronomic vein is universal. Food has always been one of man's major preoccupations and has inspired a great many proverbs. Here are some of them from around the world.

★

Everyman pushes the embers near to his own bread (Basque).

He who has been in the oven knows how pears are dried (Walloon).

While the sheep bleats it loses its mouthful (Flemish).

Dates cannot be swallowed whole = assimilate what you learn (Chinese).

Fish see the bait, not the hook; men see the profit, not the peril (Chinese).

He who has nothing in his plate looks at the dish (Chinese).

Which house does not have a pot that leaks? (Chinese).

Bad beans when planted grow only roots = said of things which have cost much yet turned out badly (Korean).

Eating pears also cleans the teeth = to kill two birds with one stone (Korean).

A Samurai who has not eaten still uses a toothpick = even if poor don't show it (Japanese).

Rice cakes are better than cherry blossoms = be practical and not a dreamer (Japanese).

Good juice from fruit comes without squeezing (Persian).

He who eats when he is full, digs his grave with his teeth (Turkish).

A full kettle boils late = good things come slowly (Turkish).

He who has burned his mouth with (hot) milk blows on ice-cream (Turkish).

If you burn your tongue on hot milk you blow on cold water (Russian).

If you would eat *Kalach* (bread) don't stretch out on the oven. = If you want to eat bread dont be lazy; go out to work instead (Russian).

One does not go to Tula with one's samovar. = Coals to Newcastle (Russian).

★

Every vegetable has its time. = There's a time for everything (Russian).

Kasha (buckwheat gruel) **cannot be spoiled by butter.** = Store is no sore (Russian).

A small date-stone props up the water jar = a great prince often owes his security to the lowest of his subjects (Egyptian). (In Egyptian villages all houses have huge water jars stopped at bottom with a date or other fruit stone).

He who eats alone chokes alone (said when persons see a man eating alone) (Egyptian).

Crab that walk too much, him get in kutakoo (crab soup) (Creole).

He has ears always listening for food = is a glutton (Maori).

Don't divide the cray-fish (i.e. a little thing) **give it whole** (Maori).

A sleeping shrimp is carried away by the current (Peruvian).

You can't unscramble eggs = what's done is done (American).

You can't make an omelette without breaking eggs (French).

When there is no fresh meat, *charqui* (dried meat) is also food (Argentinian).

To warm the water so that another takes the maté (a herb drink). = Pull the chestnuts out of the fire for someone (Argentinian).

It is meat of the neck = tough nut to crack; difficult to swallow (Brazilian).

The leafy tree does not always give savoury fruit (Brazilian).

★

He who has the most saliva can eat the most *pinole* (roasted maize flower) (Mexican).

The corn's second growth comes from the stump = like father like son (Zulu).

Bees eat their own honey = as you make your bed you must lie on it (Zulu).

It is with its own face that the plate receives the soup = if you wish a thing done well, do it yourself (Nigerian).

A saucepan that will taste of savoury food will have its bottom glow red with heat = the path to glory is paved with rough stones (Nigerian).

He ate wheat; it drove him out of Paradise. To Mohammedans wheat was the forbidden fruit (Swahili).

The beast that eats a man is hungry = something which cannot be helped (Swahili).

The fish in the net begins to think (Swahili).

Even the nibbling rabbit can gorge itself to death (Tibetan).

He has a boneless tongue = does not keep his word (Thai).

Nourish no worms that eat timber = be careful in choosing friends (Thai).

By the time peas be cooked, sesame seeds be burnt = do it now or it will be too late (Thai).

Be it an onion, let it be given graciously (Afghan).

If the night is dark the apples are counted = be careful when danger is ahead (Afghan).

★

Rice that enters the spoon does not always enter the mouth = many a slip twixt cup and lip (Malayan).

Where there is water there is fish = no smoke without fire (Malayan).

Will the crocodile refuse to eat the carcase? = a good offer is not refused (Malayan).

Eat coconuts while you have your teeth (Ceylonese).

Fasting in the best medicine (Hindi).

The poor seek food, the rich seek an appetite (Hindi).

A wooden pot will not cook twice. = You can fool some of the people some of the time but not all the people all the time (Hindi).

★

With two cooks the cooking-pot is neither hot nor cold. = Too many cooks spoil the broth (Hebrew).

Every pumpkin is known by its stem. = The child is father of the man (Hebrew).

Vinegar, the son of wine, i.e. bad son of a good father (Hebrew).

When the ox is down, many are the butchers (Hebrew).

Don't be too sweet and you won't be eaten; don't be too sour and you won't be spat out (Yiddish).

On black earth grows the best corn = simple people often have the best hearts (Yiddish).

Black earth gives white bread (Swedish).

Eating is half one's food, sleeping the other half (Swedish).

The most stupid peasants get the largest potatoes (Swedish).

Even crumbs are bread (Danish).

He cannot lay eggs but he can cackle (Danish).

Swallow the omelette without having the eggs = count one's chickens before they are hatched (Spanish).

An egg of today is worth more than the chicken of tomorrow = a bird in the hand is worth two in the bush (Spanish).

He who cannot pay for herrings should not want trout (German).

Woman is like an onion, nice and white to look at, but when cut into, there is no kernel, no heart, and one must cry (German).

Chagrin is like rice in the granery: each day it diminishes a little bit (Malagasy).

★

He who shakes the bone profits from the marrow (Malagasy).

Wise words are like sugar cane being sucked: the savour cannot be exhausted (Malagasy).

There are words which resemble salted jam (Arabic).

Salt cannot be tasted in a bitter thing even when handfuls are used (Arabic).

Do not judge the grain of pepper from its tinyness; taste it and you will see how it stings (Arabic).

Good coffee should be black like the devil, hot like hell, and sweet like a kiss (Hungarian).

He who buys his flour is blind of one eye; he who buys his bread is blind of both (Italian).

He rises like a milk soup = gets angry easily (French).

AIRBORNE CATERING has had a new look since efficient aircraft ovens were developed about ten years ago. Today on major airlines like Belgium's Sabena and Britain's B.O.A.C. (above, left and right) and America's P.A.A. (below) main meals are served from shining, modern galleys.

Sabena, B.O.A.C. and P.A.A. photos.

GARGANTUA of the skies

As a child, Gargantua—giant hero of Rabelais' satire—was nourished with the milk of four cows; reaching manhood, he drank his fill from a hogshead holding 500 gallons, and his redoubtable appetite was more than equal to the roast oxen which his cooks set before him.

Today in many large cities there are groups of chefs facing pretty much the same problem as Gargantua's kitchen staff. They too have to satisfy the appetite and please the palate of a giant, one whose size increases at a phenomenal rate each year—the airline passenger.

The cooks, working in the kitchens of Air France, at Orly Airport, Paris, for example, last year used up 40 tons of meat, 80 tons of poultry, nearly half a million eggs and over 70 tons of sugar in the meals they prepared for passengers to eat on airliners leaving this airport.

Five years from now, the Gargantua of the Skies at this same airport—by then a seasoned traveller in jet airliners—will need 170 tons of sugar to sweeten his coffee and his pastries, 200 tons of poultry, 90 tons of meat, a million eggs and (this being France) two and a half tons of paté de foie gras. Today the Catering Service of Air France at Orly handles 36,000 items of cutlery and crockery each day. By 1962 it will be using well over 80,000.

Plans have already been made and action taken to cope with the Titan's inexorably growing appetite. Air France has begun to build spacious new catering quarters at Orly.

Air meals come of age

Full meals for air travellers became both a possibility and a necessity in the mid 1930's. Since then the serving of fine foods under the best possible conditions has become an ever increasingly important part of airline operation, and the present standards of airborne catering reflect the ingenuity and resourcefulness that have been brought to bear on the problems of serving full meals efficiently and swiftly.

One of the airline companies with a very long experience of these problems is the British Overseas Airways Corporation (B.O.A.C.). In 1934 this company was using charcoal heated containers to keep freshly cooked food hot until the service of the meal could begin. This and similar methods were superseded by the use of insulated containers and, in 1946, by the first efficient aircraft

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ovens. These were primarily for reheating frozen foods so that is was no longer necessary to serve meals immediately after take-off—while they were still hot.

B.O.A.C., like many other major airlines, aims at a de-luxe restaurant standard of service. Care is taken in the planning of menus to provide for national and religious dietary preferences, and foods likely to give offence to certain faiths are excluded on some sectors.

The careful planning and preparation which goes into modern airline catering enables passengers high over the Atlantic to eat the same sort of food they might order in a Paris or New York restaurant. Pan American Airways (P.A.A.) for example, prides itself on serving meals that include such choice dishes as filet mignon and roast duck prepared with orange sauce.

The Belgian airline, Sabena, actually sent the famous chef who runs its catering service to the U.S.A. for two years to study American tastes and cooking. His job during this time was to draw up menus for the transatlantic services which would please American passengers while not running contrary to European tastes.

National tastes are also considered on the shorter runs. On its Brussels-Warsaw line, Sabena serves up French cooking—with Polish vodka. For Belgians going south on the Brussels-Nice service, the holiday begins on the aircraft with Provencal dishes and *pastis* to drink.

Each to his taste

About three quarters of Sabena's meals—even for the return trips to Belgium—are prepared in Brussels, one exception being the New York-Brussels service whose food comes from New York, though the dishes are prepared "French style".

To aid him in preparing menus which have the greatest chance of pleasing the greatest number, Sabena's catering director has a long list of the likes and dislikes of various nationalities. Here are a few of them:

- South Africans don't like French wine.
- Americans don't like very dry Champagne.
- The French only like their own wines.
- Americans don't like strong coffee.
- Italians like strong coffee.
- Belgians are fond of what they call "filet Americain" (raw, chopped steak) not, in fact, a favourite American dish at all.
- Generally speaking the English like things that displease the French.
- The Dutch are given to eating brussels sprouts with roast duck and orange sauce.

As for the crews of Sabena, most of them seem to suffer from a bad case of jaded palate; they have tasted everything and so, it seems, have the crews on other airlines.

PIE IN THE SKY. Mountains of pastries (above) are being prepared for airline services leaving Orly Airport Paris. Last year passengers consumed over 1,000,000 cakes, croissants, brioches. Left, a chef at P.A.A.'s New York station prepares roast duck for the transatlantic service. It will be served in orange sauce with a dash of curacao and with wild rice.

Air France and P.A.A. photos

Foods and fads from near and far

Spinach not for children

Green leafy vegetables are excellent for certain nutritive purposes, but the spinach usually eaten in North America and Europe is not one of the best of them. As an energy producer for human beings, spinach is inferior to hay. The little protein it contains is very hard to digest, it contains no starch, sugar or fat (unless the fat has been added). A man would starve to death very promptly on spinach, unless he ate about 30 lbs per day. Spinach contains a rather large amount of oxalic acid which has the property of combining with lime. Hence it can actually take out of the body some of the calcium already present, and should not, therefore, be given to a child.

Paid with loaves

Baked bread dates back only some 5 000 years, to the days of ancient Egypt. It was made from wheat flour, although in later times flour from millet, barley, oats, rye, and rice has been used. In ancient Egypt, almost everyone from the humblest labourers and slaves to priests, state officials, and even viceroys, were paid with loaves, and, as grain was a government monopoly, the ruling pharaoh actually controlled the country's entire basic wealth. From excavations in ancient tombs bread has been found in round, conical, elongated and braided designs, and in the form of birds, fishes, pyramids, sphinxes, and vases.

Sickness with many names

In Central Africa it is called "kwashiorkor", in South Africa "infantile pellagra". In Jamaica it is called "fatty liver disease" or "sugar baby". The French once called it "dystrophie des farineux", and the Germans "Mehlnährschaden". In the Belgian Congo it is sometimes called "M'Buaki", in India, "nutrition dystrophy" or "nutritional œdeme syndrome", and in Latin America "distrophia pluricarencial infantil". These names, and dozens of others in different languages, all mean the same kind of sickness in young children—protein malnutrition. Today, FAO and WHO and other U.N. agencies are attacking this world-wide problem.

Folklore and science agree

Powdered deer antlers, which are rich in calcium, have long been used in Northern China to prevent the ill effects of calcium deficiency in mothers. The Chinese and later the Greeks used certain kinds of seaweed which are rich in iodine to cure diseases such as endemic goitre. The North American Indians used pine needles, which are rich in ascorbic acid, to cure scurvy, long before the discovery of vitamins.

800,000,000 more mouths

A number of interrelated causes, some rooted deep in the past, are responsible for the present food crisis. One of the main ones is the spectacular growth of population in modern times. In the 200 years between 1650 and 1850, world population doubled; in the 100 years between 1850 and 1950, it doubled again. The growth in the last half-century amounts to about 800 million people, or nearly 60% in 50 years. Increases in population seem to be most rapid in those regions where nutritional levels have always been low and food problems are already acute.

Butter v. margarine

The fat in margarine is equally digestible and equal in calories to other food fats, including butter. The milk solids other than fat (1 per cent.) present in both butter and margarine are of negligible nutritional importance. When margarine is fortified with vitamin A it can be substituted for butter in the ordinary diet without any nutritional disadvantage.

Relished and disliked

The British disdain some useful foods. In parts of the country, for example, certain green vegetables once widely eaten are now considered as "cattle fodder".

★

During the 1846 potato famine, some of the Irish rejected the maize sent from America for their relief, and in some cases even starved rather than eat this unfamiliar food.

★

North Americans would refuse to eat dog, but some Asians enjoy it. In New Guinea breast of hornbill is a delicacy. Australian officials in New Guinea ate it too, accepting it as a rather peculiar beefsteak. When they found out what it really was they refused it.

★

In New Mexico hybrid corn was introduced to Spanish American farmers, and it produced three times the yield of their own corn. Within four years, however, the farmers had ceased to grow it; their wives did not like the texture and no one enjoyed the flavour.

★

In Assam, pork is liked and pigs are killed; yet an Englishman failed when he tried to improve the pork supply by the introduction of black and white Berkshire pigs. The reason: the people believe that the Chin spirits of Assam do not like pigs with black and white markings.

Notions about milk

Some American Indian tribes consider milk disgusting. Among certain African tribes, women may not do the milking. Men of the Kababish tribe drink only camel's milk, women cow's milk and children goat's milk. Among the Banyankole, milk is reserved for the "nobles". In Japan and Burma and among the more conservative groups in China, milk and milk products are considered undesirable food for adults. In certain countries parents consider cow's milk a food of almost magical value, and believe that their children will rapidly weaken and die unless they consume enormous amounts of it daily.

If it aches, blame mummy

In a recent investigation in Sweden, it was found that the children spent on the average 1/5d ($0.20) per head per day on sweets. One explanation given is that young children are quick to please their parents by learning to like sweets which are continually presented to them—as gifts, rewards, bribes and treats.

Chemicals in food

Most people will refuse many of their usual foods if they do not have the colour, flavour and consistency to which they have become accustomed. To ensure that foods stay in line with consumers' tastes, a large number of chemical substances may be added during processing. These "food additives" include preservatives, colours, flavours, sweeteners, emulsifiers, anti-staling and anti-rancidity agents, thickeners, buffers and bleaching agents.

Information on this page has been supplied by the World Health Organization, but does not necessarily originate from official sources.

THE YEAR THE RAINS FAILED

by Melville Hardiment

WHEN FAMINE STRIKES FIRST VICTIMS ARE USUALLY YO

For most of us, a famine is a news item, a row of statistics, a collecting box label. In the West it is difficult to grasp the concrete reality of famine, without first hand experience.

In actuality a famine is a hollow stomach flapping like an empty sack, a mouth dried like a brickyard kiln, unwholesomely pale lips covered with slime, and deepset hollow eyes beneath a shrunken forehead. It is sharp-pointed knuckles projecting from under a transparent, mottled skin, bony, over-accentuated kneecaps and an unprotected ribcage.

It can be a sick and weary mother crouching in the dust, spitting saliva into the mouth of her dying child ; it is always the pathetic, hollow bleating and

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USUALLY YOUNG AND THE VERY OLD. THEY WERE INNUMERABLE AMONG REFUGEES INVOLVED IN THE GREAT POPULATION MOVEMENTS IN INDIA AFTER THE WAR.

lowing of dying livestock. I once saw it in the shape of three women cutting up and eating the skin of a three months dead horse. And it has been groups of half-crazed peasants cooking human flesh.

I know a little what it is like to be in a famine. I once saw one.

Imagine a fertile province in India where I once lived, with its cultivated fields, tiny villages and thriving cities. Here the rythmn of life beats to the tempo of the cicadas in the trees, with their legs crossed as though in a gesture of devotion. Day and night there is the tinkling of the bells on the bullock carts forever rumbling and lurching along the deep rutted roads. The temple conches signal the passing of the day, and the year's festivals come and go.

As the hot weather progresses, the rivers and streams dry up and become children's playgrounds. Work is carried out only in the early mornings and in the cool of the evenings, and people sleep away the heat of the middays and afternoons.

The river beds crack and the banks of the streams crumble, but that is usual and life goes on as ever. There is water in the village well and each morning and evening the women of the village gather to draw up their supplies and gossip.

It is a large, bricklined well, twelve feet in diameter, and protected by a low wall. It is all of one hundred feet deep, and a row of projecting bricks form a circular staircase right down to the water level. The depth of water can be calculated by counting the number of bricks showing above the water.

That is how it was the year of the famine. As the hot weather neared its end we began to wonder whether the monsoon would be late or early. It was the normal topic for that time of the year. The monsoon is the season of the rains that sweep across India in a curved path from the Bay of Bengal and drop their last pourings over the Arabian Ocean. Sometimes the rains do not come. That spells famine in India.

Gradually that year it became evident that the monsoon would be late. When the time came to plant

Cont'd on next page

THE RAINS FAILED
(Continued)

VILLAGE FLIGHT FROM HUNGER AND DEATH

the thin rice shoots in the paddy fields the rains were very late indeed, and we men, who normally met at the barber's shop in the village square, began to visit the emptying well along with the women.

The swelling sun gleamed and glittered like a huge brass bedknob. We kept constant watch for the first tiny ball of cloud that would herald the break in the weather and relief from the eternal heat and flies. All that long and arid season however, the sun and sky remained hard and immaculate.

By then the women had all begun to talk of the emptying larders. The rice chatties were depleted and maize was scarce. Some of the shops in the bazaar no longer opened and their closed shutters were a sign of what was to come. At that stage it would have been sensible for us to have made plans for the evacuation of the young and the old. But human nature being what it is, all of us in the village were loath to consider leaving our tiny plots of land and few cattle. And so, each day at the well, where far too many steps were now showing, we loudly proclaimed our faith in the imminence of the monsoon. "It's bound to arrive tomorrow" we told each other. But it never came.

Distrust and aggression crept into our midst. Each family began to be very secretive about food. And one evening I suddenly realized that the famine was among us. It had very swiftly and secretly infiltrated into the village without any of us being aware. That is the awful facility of a famine.

I discovered the famine one evening while I was out for a walk. I always walked along the banks of our river, where the cracked fissures lay on the hard, baked surface of the bed like immense, black starfish. I passed the burning ghats where the Hindus burned their dead, and that evening, as a huge, spinning red sun set unevenly, like a coffin being lowered into a grave by bearers of ill-assorted sizes, there were six funeral pyres, and clustered around each were young parents. The young and the very old are invariably the first casualties. There had been no cholera, or smallpox or typhoid that year, so I knew these must be victims of hunger.

The tears of the women were bitter and arid symbols of our frustrated hopes.

From that moment life took on a new meaning. Shops no longer opened at all, and the wealthier shopkeepers left. There was a spate of rumours about the monsoon and its approach, and about government grain supplies on the way. But the food chatties were scraped clean and every tiny store of food hoarded and guarded.

We all began to walk about in a trance, and as the days passed there was soon just a foot or so of muddy liquid at the bottom of the well. It became impossible to think, or even feel anything. The funeral pyres increased in number each evening, but soon there were no tears during the rites. Yet, secretly, we all of us clung to the hope that the drought would still break.

UNESCO

There was water in the village well and each morning and evening the women gathered there to draw up their supplies and gossip. But as weeks passed the water level dropped until there was just a foot or so of muddy liquid.

Then the first refugees from villages to the east of us hurried through in family groups, each group carrying the young and bundles of house hold effects and belongings that they had already begun to cast away by the time they had reached us. By then too, they were in a desperate state, and the men of our village had to fight with some of the stronger of them, who tried to take what water we had left.

And then in ones and twos and threes and fours, our families packed up similar bundles of possessions and joined the scrambling stream of refugees trekking westwards to the hills and deep jungles of Hazaribagh and the hoped-for land of promise that lay just beyond, but which always remained just beyond the next range of hills, and which we never did find. The old and the infirm we left behind. It was what they would have wanted had we given them a choice, but there was no choice and they lay there on their charpoys in the gloomy interiors of the abandoned houses, until death came to deliver them.

Of the nine hundred and seventeen people in our village, there were only four hundred and eighty-six there next year to meet at the well and wait for the monsoon. But *that* year it did come.

Great famines of history

ALTHOUGH we know that famines ravaged Egypt during the reigns of the Pharoahs and the later Ptolemy dynasty, we are not sure exactly when they took place or how many victims they claimed. The first of the great famines of European history of whose facts we can be absolutely certain was the one at Rome in 436 B.C., when thousands of starving people were driven by desperation to throw themselves into the Tiber.

We know too that during the first centuries of the Christian era many parts of the world were visited by the grim spectre of famine and in 879 there occurred the "universal famine", a terrible calamity which was repeated nearly three centuries later in 1162.

India, because of its almost entire dependence upon monsoon rains, is probably more liable than any other country to crop failures which may deepen into famine. Thus, down the centuries, hunger has stalked across it. Between 1022 and 1033 A.D. great famines occurred there in which entire provinces were depopulated. During the second half of the 14th century there were great famines when millions starved to death and not even the King, Togluk, could obtain the necessities for his household.

Famine afflicted various areas of France during the Middle Ages, and the food shortage in England became so serious in 1586 that the government of Queen Elizabeth was forced to pass a number of laws for the relief of want which were eventually (1601) codified in the famous statute on which the English Poor Law system became based.

The Great Famine of Bengal (1769-70) carried off one-third of the population (10,000,000 people), and twenty years later there occurred the Doji Bara, or "skull famine", so called because the people died in such numbers that they could not be buried. According to tradition this was one of the severest famines ever known, and it extended over the whole of Bombay into Hyderabad and parts of Madras.

France under Louis XVI experienced a terrible shortage and mismanagement of food supplies. With the king's authorization an association was set up to ensure the provisioning of Paris with grain. In fact, however, the association was accused of speculating on grain prices and the authorization which brought it into being in 1765 was given the name of "The Famine Agreement" by the people, thousands of whom died from hunger. The Provost of Beaumont who dared to denounce this Agreement in the Parliament at Rouen was thrown into the Bastille and kept there for 22 years. When Turgot, the Contrôleur-General of Finance, decreed a free trade in grain, the members of the Association in question stirred up riots which were given the name of the "Flour War". They succeeded in having the Agreement reinstated, but their victory was short-lived for the Association was abolished by the Revolution of 1789.

Famine gripped Ireland in 1846 and 1847 due to the failure of the potato crop. Grants amounting to £10,000,000 were made by the British Parliament to aid the victims and to make good the losses.

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HEALTH AND HUNGER. In the Terai area of northern India, the U.N. Food and Agriculture Organization (FAO) and the World Health Organization (WHO) work jointly to free the land from malaria in order to spur the production of food. Here, Terai woman prepares meal of chappati (unleavened bread). Urn of goatsmilk will be passed around the family during meal.

Lost rice crop cost 1,000,000 lives

IN the second half of the 19th century, famine struck in many places: Algeria (300,000 deaths) 1868; Rajputana, India (1,500,000) 1869; Madras, Bombay and Mysore (5,000,000) 1877 and 1888; North China (9,500,000) 1877-78; 18 provinces of Russia (2,000,000) 1891-92; India (1,000,000) 1899-1901. Even in the 20th century, India has still not been freed from the scourge of famine. The loss of the rice crop in 1942 was a disaster in which in Bombay alone some 1,000,000 people died.

Today, however, India, aided by the International Rice Commission and FAO (the U.N. Food and Agriculture Organization), is almost self-supporting in rice production. Through the encouragement of this Organization, Indian farmers now use the Japanese method of rice planting in which the tiny rice shoots are grown first of all in nurseries and then transplanted by hand in the paddy fields. Formerly the rice shoots were just placed in bunches in the paddy fields. This new method has led to a greatly increased yield per acre.

In India's latest five-year plan the following projects have either been completed or are being executed:

1. The Bhakra Nangal Dam in the Punjab, designed to afford irrigation for 3,581,000 acres.
2. The Mahamadi Dam Project in Orissa which will provide irrigation for a further 1,095,000 acres.
3. The Tungabhara Dam in the Madras-Hyderabad area which will irrigate 66,000 acres.
4. A dam being built by the Damodar Valley Corporation to irrigate 900,000 acres of potentially fertile land in the Bihar.

Altogether fifty-three projects are planned, and will be carried out under various agencies, and with technical and financial help from other countries.

WORLD'S ROUND-THE-YEAR HARVEST

From the prairies of Saskatchewan to the pampas of the Argentine, from the Volga to the Nile, from the plains of India to far-away Australia pours a flood of wheat to feed a hungry world. Every month of the year, in some part of the world, machines rumble across countless fields reaping the golden harvest that means food for hundreds of millions of people. Next to rice wheat is today's most widely used human food. More than any other crop it has furnished the energy necessary for the development of ancient and modern civilizations.

It was the main food of the ancient Egyptians, Assyrians, Greeks and Romans and because it took less labour to produce than other food crops it gave these peoples more time to develop the arts and sciences. Swiss lake dwellers grew wheat perhaps 10,000 years ago. In Mesopotamia specimens have been found that were put in storeage 3,000 years ago.

Methods of growing and harvesting wheat changed scarcely at all from ancient times till the 19th century. Seed was sown by hand and harvested with a sickle. One improvement was a scythe with a frame to catch the stalks as they fell. But with such methods it took three to four hours of human labour to produce a bushel of wheat.

Today machinery does the work in the world's great wheat regions. The ground is prepared by tractor-drawn ploughs and steel-toothed harrows, then drill seeders plant the seed. Harvesting is now speeded by the "combines", the machines which cut and thresh at the same time. With this equipment a crew of four can gather the yield from 75 acres of wheat in a day.

Wheat has become an important food because it is the only grain that contains gluten, an elastic protein substance necessary for making light bread. Because of its gluten, wheat makes more palatable bread than any other grain. Its chemical composition is greatly influenced by its environment. An average sample contains about 70% carbohydrates, 12% water, 12% protein, 1,8% minerals, 2% fat and 2,2% crude fibre. A pound of wheat yields about 1,600 calories.

Except perhaps for barley, wheat is adapted to a wider range of climatic conditions than any other crop. It is grown in regions extending from the frozen tundras of the North to the southernmost tips of Africa, Tasmania and New Zealand. The U.S.S.R. and the U.S.A. are its leading world producers. Largest wheat-producing region of the world is the black soil belt of Soviet Russia, extending over 1,500 miles from the Urals to the Danubian Basin.

In the right conditions and with proper care, wheat can yield up to 40 bushels to the acre. But the wheat farmers of the world must always be on the alert. Their crop is subject to many diseases most of which are caused by small fungi.

While most of the wheat grown in the world provides the flour from which we get our "daily bread", it is also the source of many other products. By-products like bran, shorts and red dog flour obtained in milling are used as animal feed. In the wartime U.S.A. the yearly use of wheat to make alcohol used in the production of synthetic rubber and munitions was more than 100,000,000 bushels. Straw and chaff may be ploughed under to provide humus to the soil or used for livestock bedding. More and more is being used to make paper, strawboard and similar products.

THE BREAD OF ASIA

In hundreds of thousands of little "mud-pie" farms of Asian countries, life turns around the sowing, cultivation, harvesting and threshing of a plant that provides more than half the people on earth with the greater part of their food—rice. More than nine-tenths of all the rice raised on earth is grown in Asian countries, mostly in the mud of small, flooded fields where rice farmers and their families work standing in water, planting and tending the crop.

Growing most profitably and easily on low river flats, such as the plains and river bottoms of India, China (the largest producer), Japan and the countries of south east Asia, rice is the major crop on rivers like the Yangtze in China, the lower Ganges in India and the Irrawaddy in Burma. Apart from the lowland or "wet" rice, there is also the "dry" or upland plant grown on mountain slope terraces where irrigation water is dropped in ditches from one level to another.

The ancestor of the rice people eat today is a wild grass that grows besides lakes from India to the East Indies and northern Australia. The Hindus call this wild grass *nivara* or *newaree*. The English name, rice, commes from the Greek *oryzon, oryza*, which, in turn, comes from the Arabic *eruz*, and finally from the Sanscrit. No one knows exactly how long ago man began to cultivate rice, but it has certainly been grown in India since prehistoric times.

Though one of the most important staple cereals, rice, as a food, is inferior to wheat, having less protein and fat. Rice is prepared for market by first being cleaned and hulled—passed between stones which crack the hulls and free the inner grain. At this stage the germ and outer bran skin have not been removed from the kernels and "brown rice" as it is called in this form, has a good nutritive value in fat, minerals and vitamin B. But when rice is polished and glazed until it is white, much of these vitamins is lost. A diet largely composed of polished rice may produce "beri-beri", a vitamin deficiency disease unless it is supplemented by other foods richer in protein and fat. In recent years a process has been developed to produce "converted" white rice which is a complete food, containing up to to 80% of the vitamins and minerals of field-ripened rice.

Rice is not only a basic food for many hundreds of millions of people, it is the basis of many products and provides clothing and shelter too. Starch and breakfast cereals are made from the rice grains, the Japanese use them to ferment rice wine, or *sake* and from them the Indians distil a liquor called *arrack*. From the rice straw the people of Asian countries make shoes, hats, thatching for houses, carpeting and mats. Rice bran, polish and straw are used as fodder for pigs and cattle and for fertilizer, and from the rice hulls packing material is made.

Following the Second World War, because it was scarce and the price had risen sharply, rice was partially replaced by wheat and other grains in the diet of the people in India, Ceylon, Japan and the Philippines. This may have led to a lasting change in the food habits of some groups among the people. Even though rice is now more plentiful in Ceylon the use of wheat seems to persist and in Japan, the consumption of wheat has continued to increase while that of rice and barley has declined.

Letters to the Editor

Sir,

Having read your issue "Spotlight on the World of Books" (Feb. 1957) with great interest I should like to tell you of a small grievance I have in connection with books. I speak—more or less—four languages: English, Spanish, Italian and German and to keep myself "in form" I have to buy books in these languages. I regret to say, however, that the price of foreign books (or revues) in France is much higher than the price shown for the country of origin. I recently paid 950 francs for a book by Carlo Levi published in Milan. The Italian price was 1,050 liras (a little more than 600 French francs). Why is there such a difference in the prices? If UNESCO wishes to encourage cultural exchanges it seems to me that it should try to get countries to admit books free of duty, or at least encourage them to reach bilateral agreements. Books are usually expensive enough without the addition of high duties.

Mlle Muller
Paris

Editor's note : Under the UNESCO *Agreement on the Importation of Educational, Scientific and Cultural Materials, which France has joined, foreign books enter France duty-free. However, there are internal sales taxes* (taxes sur les transactions) *which are applied to all books, foreign and French. In the case of foreign books, transport and commission charges must also be taken into account. Transport costs themselves represent about* 12 *per cent of the original published price of an imported book.* UNESCO *is working with the Universal Postal Union and other organizations to reduce transport charges on books, brochures, etc.*

Sir,

In your February 1957 issue ("Spotlight on the World of Books") you published many statistics on translations —"World's most translated authors" etc. I should like to point out that the number of translations of foreign books in a given language does not always necessarily reveal the interest of the country concerned in the literature of other lands. In many countries quite a large proportion of books from abroad are read in original language versions. In the secondary schools of the Netherlands, for example, French, English and German are obligatory subjects. As a result, educated men and women very rarely read novels originally written in these languages in a Dutch translation.

J.K. Van der Haagen
Paris

Sir,

I am a student at the City College of New York where my English class received the May, 1956 (No 12 U.S.A.) edition of THE UNESCO COURIER ("Are Our Children Learning History With a Slant"). You are to be complimented on the subject material... but there are several questions which are brought to my mind after a careful reading of the articles.

In the article "How Biased Are Our History Textbooks?", Herbert Abraham speaks about the rôle that nationalism and militarism have played in our history books. Mr. Abraham seems to have forgotten the state of the world today and would have the textbook writers place less importance on mili tarism. Would this give the future generations a true picture?

The textbooks of the West are attacked in the article, "Asian History Through Western Glasses" by Ronald Fenton. Needless to say our past view of Asian history has been "distorted and out of focus", but can our textbooks keep pace with our changing society? Perhaps a better trained history instructor and more emphasis on current events would be the solution.

An article which I found informative and stimulating was "Daddy, What's the good of History?" by C.Peter Hill. Once and for all we now have an answer to the children's embarrassing question.

The last question I would ask is whether there is a far Eastern edition of THE UNESCO COURIER and if so does it have an issue devoted to a similar topic, i.e. "Has Our Evaluation of the West in Our History Textbooks Been Fair?".

Stuart Rosenthal
Brooklyn, N.Y.

Editor's note : Our reader's comments are certainly worth pondering over. We are sure that Mr. Abraham did not lose sight of the state of the world today. He agrees with our correspondent that future generations should be given a true picture, and regrets if he gave the impression of suggesting anything different. Mr. Rosenthal is, of course, right in asking for better trained teachers and, to some extent, right in suggesting more emphasis on current events (but the value of teaching current events depends on the extent to which these events are treated in a context of history, sociology, psychology, etc.) UNESCO *is working on the question of the treatment of the West in Asian textbooks but it will be some time before a report is published.*

Sir,

I am entirely in agreement with the aims and purposes of THE UNESCO COURIER and I have only one complaint to make: I think it has too few pages for the scope of the subjects it covers.

Yves Garnier
Ivry, France

Sir,

On behalf of our company which is a subscriber to THE UNESCO COURIER I want to express our admiration and send you our congratulations for the January issue ("Rare Treasures of World Art") which is a joy to the eyes and to the mind. In a few compact pages you carry your readers from the Pilgrims' Road leading to Compostella, to the arcades of Florence and the gardens of Isfahan.

J.L. Françoisprimo
Monaco

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YUGOSLAVIA. — Jugoslovenska Knjiga Terazije 27/11, Belgrade.

From the Unesco Newsroom...

ATOMS FOR PEACE ON FILM: An international catalogue of films on the peaceful use of atomic energy is being prepared for UNESCO by the International Scientific Film Association. A selection is now being made from existing films showing how the atom can be used for the good of mankind. The catalogue, to be published by UNESCO next year, will list 80 films and give technical data on each of them, information on its availability, an analysis of its contents and an evaluation from the scientific as well as from the cinematographic point of view. A selection committee has already screened more than 100 films from about 15 countries.

■ **KEPT IN THE DARK:** *Nearly 60 per cent of the world's people have insufficient press, film and radio equipment to keep them properly informed of events at home and abroad, according to a U.N. report on "Media of Information in Under-Developed Countries". Prepared jointly by the U.N. and* UNESCO, *the report is due for discussion at the next meeting of the U.N. Economic and Social Council. It notes that in 100 countries with a combined population of 1,400 millions (over half the world's total), press, film and radio facilities need developing. Nearly all the countries cited are in south and east Asia, the Middle East, Africa and Latin America.*

FAIR DEAL FOR AUTHORS: Twenty-four countries have now joined the Universal Copyright Convention sponsored by UNESCO, the latest being two from Latin America—Mexico and Ecuador. The Convention was drawn up to fill gaps in international copyright legislation under which some countries are bound by one convention, others by a different one and still others by no agreements at all. The Universal Copyright Convention eliminates costly registration formalities; countries joining it give to foreign works the same protection accorded to those of their own nationals.

■ **GAMMA RAYS v. TSETSES :** *The possibility of making use of atomic energy to rid Africa of the tsetse fly, which causes sleeping sickness, is being examined at the British Atomic Energy Research Establishment, Harwell, England. More than 3,000 tsetse fly pupae have been flown there from East Africa to be bombarded by gamma rays in experiments designed to produce sterile flies.*

TRAVEL AT HALF THE COST: The Argentine Government has granted a 50 per cent reduction in transport costs by rail and sea to persons visiting Argentina for educational, scientific and cultural purposes, under UNESCO's auspices. The reduction applies to fares and to charges for luggage, food and accomodation. Argentina's concession follows UNESCO's request to Member States to grant the widest possible facilities for educational travel.

■ **MEN WITH MISSIONS:** *In recent weeks more teachers, scientists, technicians and educators have joined the ranks of* UNESCO's *several hundred technical assistance experts and have gone on missions or been re-assigned to new ones in many parts of the world. Dr. Hendrick Mooy, Dutch mathematics professor, joined an international team of science professors teaching at the new Science Faculty of the University of Monrovia, Liberia; Dr. Caleb Gattegno arrived in Ethiopia on a science teaching mission; Mr W. O'Dea, of the London Science Museum went to New Delhi to aid the National Physical Laboratory in establishing a science museum, and a four-man mission arrived in Laos to help plan a reorganization of the country's national system of education.*

ASIAN INTER-AID: Plans to build three new universities in Japan for students from south east Asia were announced recently. Special facilities for foreign students from Hong Kong, Singapore, Thailand and the Philippines already exist in three Tokyo universities. In Australia, students have launched a scheme whereby volunteers among Australian college graduates can offer to work in Indonesia to help the country's development. The Australian Government will provide transport and make a clothing allowance to volunteers. Students will work for the Indonesian Government, at local rates of pay, offering their special skills with the aim of promoting a spirit of friendship and understanding between the two countries.

■ **OPEN DOORS TO KNOWLEDGE:** *In the past six years, Thailand has allowed some $232,000 worth of educational, scientific and cultural materials to enter its borders duty-free under the* UNESCO-*sponsored Agreement which exempts books, works of art, educational films and recordings and science equipment from import duties. This was stated in a recent Thai Government report to* UNESCO *on the application of the Agreement since 1950. Twenty-three other countries are operating the same convention.*

■ **REFUGE FROM TV:** *Certain public libraries in the United Kingdom are reserving, as an experiment, a special room where schoolchildren can do their homework. The scheme aims to solve the problem of lack of space in certain homes and of distractions like radio and TV which prevent children concentrating on their school work.*

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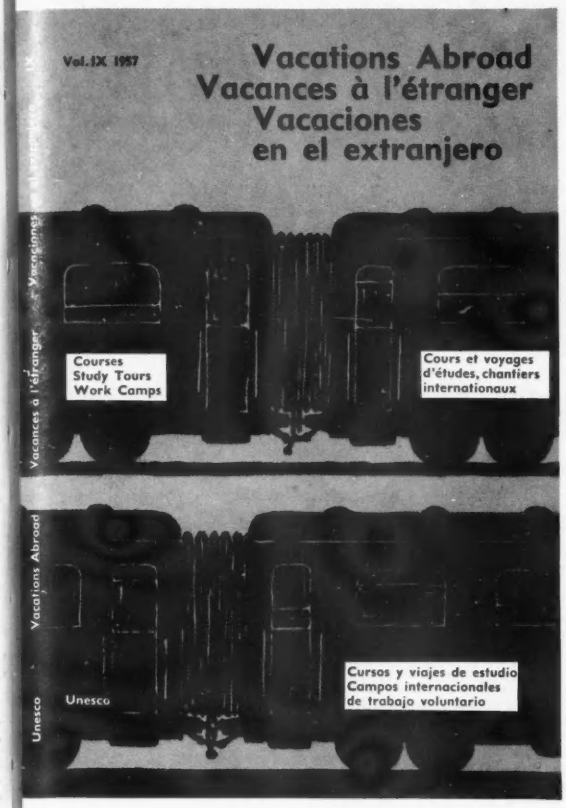


The 1957 edition of UNESCO'S annual handbook *Vacations Abroad* is now available. It gives details of more than 1,000 ways to combine a trip with a stimulating educational adventure. Here are a few examples:

VACATION COURSES: over 485 summer schools, seminars and vacation courses listed, with something for every taste, from a course on home economics at the University of Puerto Rico to a physical education course at the Fredensborg College of Physical Education in Denmark.

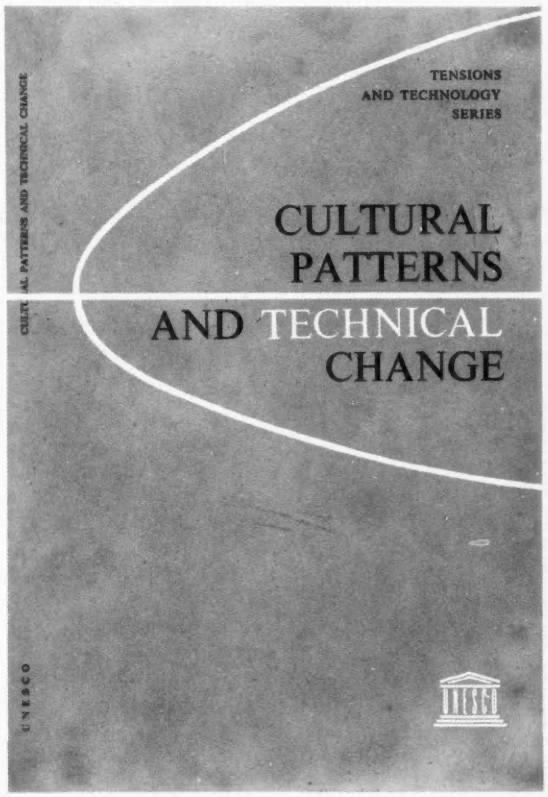
STUDY TOURS: information on study tours arranged by some 140 different organizations and universities, ranging from an educational tour in Africa to walking and climbing tours in Austria.

HOLIDAY CAMPS, HOSTELS: information on over 300 hostels, youth camps and centres of all types. Typical examples are the camps under canvas in Austria, a holiday camp in the new independent state of Ghana (formerly Gold Coast) and youth hostels in India and Iceland.

VOLUNTARY WORK CAMPS: lists about 130 organizations arranging work camp projects for young people from different countries and different social backgrounds.

VACATION SCHOLARSHIPS: information on about 70 varied scholarship programmes. Includes summer courses abroad for students and teachers, scholarships for youth leaders, vacation study visits for trainees and technical school students or graduates.

Price: $1;5/-; 250 fr.



Cultural Patterns and Technical Change, prepared for UNESCO by the World Federation for Mental Health and edited by Margaret Mead, is now available. A provocative and authoritative study of the impact of modern technical advances on the traditional life in five representative old societies. Prepared by an outstanding group of international social scientists under the direction of the renowned anthropologist, Margaret Mead. Burma, Greece, the Palau Islands, Nigeria, New Mexico; the description of time-honoured ways in matters of marriage and religion, the position of women, the rôle of money and goods, public health and food, the manners of work and play as related to new scientific methods and technical advances. This book is the important story of how underdeveloped countries are brought into the modern community of nations. 348 p.

Cloth: $2.50; 13/6; 650 fr.

WHO photos

THE OSLO BREAKFAST

For most Norwegian children the daily school programme begins with an exercise everyone enjoys—eating. A free meal for all schoolchildren—The Oslo Breakfast—has been given in Norway's capital since 1926. The idea has spread and is rapidly becoming a national institution. The breakfast itself is made up of milk, fruit, raw vegetables, a spoonful of codliver oil and various sandwiches, which together provide a growing child with the calories, proteins, calcium, iron and vitamins needed for health and development. Organized by the Norwegian National Nutrition Council (which body is also the Norwegian FAO Committee), the Oslo Breakfast shows children how to choose the right kind of food teaches them that eating well means eating proper food in the right proportions and lays foundations for good health